

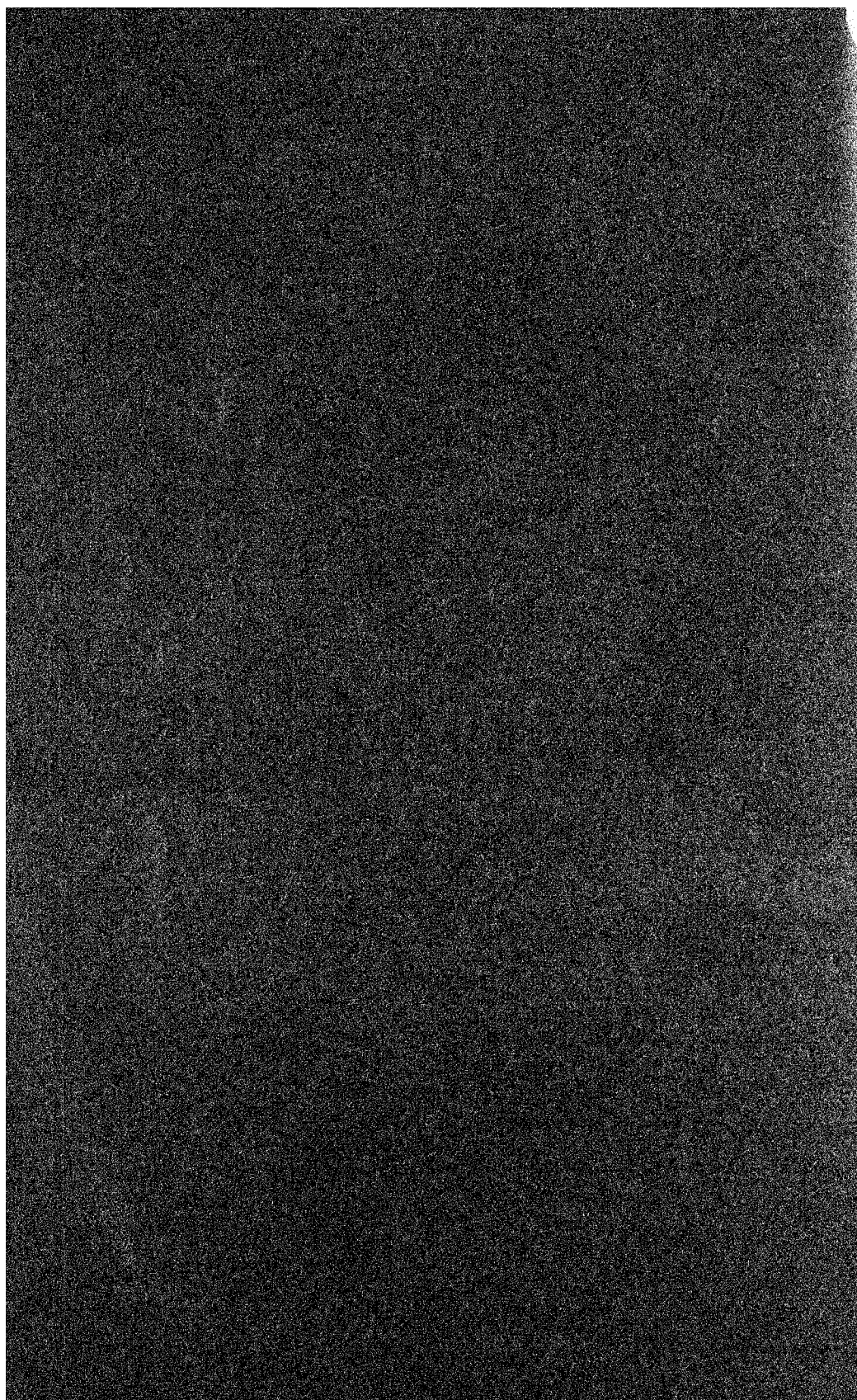
ANNUAL REPORT
DEPARTMENT OF AGRICULTURE
NORTHWEST TERRITORIES

1900

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY



EDMONTON, ALBERTA
1900



ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE
OF THE
NORTH-WEST TERRITORIES

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REGINA
JOHN A. REID, KING'S PRINTER
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DEPARTMENT OF AGRICULTURE,
REGINA, *March 1, 1901.*

To His Honour

AMÉDÉE EMMANUEL FORGET,
Lieutenant Governor of the North-West Territories.

SIR,—

I have the honour to submit herewith the Annual Report of the Department of Agriculture for the year 1900.

I have the honour to be, Sir,

Your obedient servant,

G. H. V. BULYEA,
Commissioner of Agriculture.

REPORT

OF THE

DEPUTY COMMISSIONER

DEPARTMENT OF AGRICULTURE,
REGINA, *March 1, 1901.*

G. H. V. BULYEA, Esq., M.E.C.,
Commissioner of Agriculture.

SIR,—I herewith have the honour to submit for your approval the third annual report of the Department of Agriculture for the North-West Territories, which contains a statement of the work done under your direction during the year.

METEOROLOGICAL.

The rapid advance of settlement, and the constantly increasing complexity of the problems that must consequently be solved by North-West agriculturists, render more and more apparent the necessity for the careful collection, compilation and publication of reliable meteorological statistics.

Signs are not wanting to show that agriculture in the Territories has, of recent years, been undergoing a transition from unthrifty pioneer methods to those which are the outcome of experience and foresight. A note of warning has already been sounded, more than once, with regard to the possibility of soil exhaustion; and there is evidence that our farmers are beginning to appreciate the position and to take steps to husband the resources of the soil, with which it has been so liberally endowed by nature. On the whole, there is a distinct tendency to improvement and a desire for more light on the practical-scientific aspects of agriculture; of which the increasing demands made on the Department for speakers at Institute meetings are not the least encouraging and hopeful sign. It is safe to predict that the farm of the future in the Territories will be more intensely and carefully cultivated than the farm of the present, and that the economic results will be very much more satisfactory. No substantial advance in the agricultural methods is, however, possible without attention on the part of farmers to climatic and soil conditions. The first of these, meteorology supplies in the most clear and comprehensive manner, and the second is most intimately associated with the first.

Temperature and precipitation statistics especially are essential factors in the prosecution of agricultural experimental work, whether undertaken by the state or the individual—and every progressive farmer is more or less an experimentalist; but such work, if entered upon without consideration of climatic conditions, will most likely end in disappointment, failure and discouragement. The value of experimental work need not here be referred to, as it is dealt with elsewhere in this report; it may suffice to

indicate that the tremendous strides which the live stock industry is now making in the Territories, will render fodder plant investigations one of the most important features of this work, and the introduction of new species must to a large extent be determined by conditions prevailing as to temperature and precipitation.

It may be added, that meteorological observations taken during the growing season have an even wider field of usefulness than as the handmaid of the progressive farmer, as, taken in connection with other information, they provide a means of estimating the probable yield of crops, and thus no doubt influence prices to a considerable extent.

As mentioned in former reports, the meteorological work of this Department is carried on under the instructions of the Dominion meteorological service at Toronto, and by means of voluntary observers stationed at various points throughout the Territories. By arrangement with Mr. R. F. Stupart, the director of that service, all voluntary observers in the Territories are now appointed on the recommendation of the Department. Supplies of forms, etc., are also furnished to observers by this Department, requisitions being made on the Toronto office from time to time for the same when necessary.

I am pleased to be able to report that great and increasing interest is being taken by our observers in the work, and that the monthly reports are now being sent in with a regularity which is most encouraging and augurs well for the future use of the service. Many observers send special reports with regard to various natural phenomena which come under their observation. Such reports are always most welcome, and are likely to prove of considerable interest and scientific value if systematically carried on from year to year.

In addition to the reports of observers, the various local newspapers published in the Territories are carefully scanned for information relating to the weather and condition of crops; and on the second day of each month a telegraphic summary of the conditions which have prevailed throughout the Territories during the month immediately preceding is sent to the Toronto office, which information is embodied in the weather maps issued each month by the Dominion meteorological service. It is hardly necessary to add that Mr. R. F. Stupart has at all times been most willing to meet the Department's wishes and fall in with all reasonable suggestions, having in view the increased efficiency of the service.

The voluntary observers in the Territories are of two classes: those who report precipitation observations only, and those who report both temperature and precipitation. Their names and distribution are as follows:

Precipitation Observers.

Beaver Hills,	W. Holme
Coutts,	J. G. Brynner
Didsbury,	J. B. Detwiler
Dirt Hills,	James Nutter
Innisfail,	Henry George, M.D.
Regina,	J. R. C. Honeyman
Saltcoats,	F. W. Anglin
Stirling,	Theo. Brandley
West Beaver Hills,	Rev. Clement Hoyler
Weyburn,	R. M. Mitchell, M.D.

Temperature and Precipitation Observers.

Alameda,	J. A. Deyell, M.D.
Calgary (Experiment Station),	P. Turner Bone, C.E.
Chaplin,	J. H. Cook
Crane Lake,	H. N. Slater
Crescent Lake,	Frank Baines
Estevan,	E. H. Scott
Gatesgarth,	G. & B. Spring Rice
Grenfell,	W. H. Ball
Indian Head,	D. G. Mackay
Knee Hill,	Alex. Wyndham
Manor,*	R. H. Harding
Moose Jaw,	C. A. W. Stunt
Muskowpetung's,	H. Richardson
Oonikup,	Mrs. J. Reader
Pincher Creek,	G. W. Gill
Red Deer,	Robert Gray
Saskatoon,	Thos. Copland

*Formerly Cannington Manor.

Under the peculiar climatic conditions which prevail in the North-West, most interest naturally attaches to observations during the "growing season," say from April to September. Tables I and II give the results of such observations during the growing season of 1900, made at various selected points. Table I gives the latitude, longitude and height above the sea level of each station. It will be observed from a perusal of Table II that the highest temperature in each month was experienced at Medicine Hat.

I.—MEAN TEMPERATURE, 1900.—*Growing Season at well distributed points.*

STATION	LAT. N. DEG MIN	LONG. W. DEG MIN	ELEVA- TION FEET	APRIL	MAY	JUNE	JULY	AUG.	SEPT.
Moosomin	50 0	101 37	1882	46.0	54.7	61.4	61.9	61.9	49.3
Indian Head	50 28	103 40	1924	47.0	56.1	63.3	64.3	64.1	50.9
Regina	50 27	104 37	1885	46.7	56.9	62.6	63.6	62.8	50.3
Moose Jaw	50 21	105 35	1745	45.3	56.1	63.0	63.6	61.7	48.9
Swift Current	50 20	107 45	2439	48.7	57.5	65.8	66.6	62.9	51.4
Medicine Hat	50 1	110 37	2161	50.5	58.3	67.0	69.0	63.4	53.4
Calgary	51 2	114 2	3389	44.1	51.8	57.6	58.2	55.1	47.8
Macleod	49 44	113 24	3060	47.1	55.4	62.4	63.5	59.9	51.8
Red Deer	52 15	113 30	2795	44.3	52.9	57.2	58.3	54.1	46.8
Edmonton	53 33	113 30	2158	46.4	55.7	59.4	59.4	56.1	48.3
Prince Albert	53 10	106 0	1402	44.5	54.4	60.0	60.1	58.4	49.3
Oonikup	53 30	101 20	.....	40.1	49.0	61.8	63.2	60.9	.....
Territorial Averages				45.4	55.0	61.0	62.5	59.3	49.3

II.—PRECIPITATION, 1900.—*Growing Season at points mentioned in Table I.*

STATION	APRIL		MAY		JUNE		JULY		AUGUST		SEPT.		TOTAL
	Amount	Difference from Average	Amount	Difference from Average	Amount	Difference from Average	Amount	Difference from Average	Amount	Difference from Average	Amount	Difference from Average	
Moosomin	0.40	.....	0.69	.....	0.51	.....	2.33	.....	5.98	.....	4.83	.....	14.74
Indian Head	0.27	-0.78	0.89	-1.30	0.65	-2.45	1.73	-1.63	4.85	+4.15	3.71	+3.01	12.10
Regina	0.10	.....	0.85	+0.17	1.30	-1.43	1.50	+0.53	3.14	+2.49	2.26	+1.75	9.15
Moose Jaw .....	.....	.....	1.51	.....	0.19	.....	1.31	.....	2.09	.....	2.41	.....	7.51
Swift Current	0.42	+0.55	2.49	+0.79	1.38	-1.38	2.42	-0.02	2.75	+0.90	2.48	+1.35	11.94
Medicine Hat	1.25	+0.54	1.62	+0.32	2.26	-0.52	2.67	+0.74	5.65	+4.23	1.92	+0.79	15.37
Calgary	2.04	+1.50	1.32	-0.48	3.56	+1.18	2.02	-0.88	1.29	-1.05	3.99	+2.84	14.23
Macleod	0.60	.....	0.81	.....	0.28	.....	2.67	.....	0.64	.....	2.39	.....	7.39
Red Deer	3.04	.....	2.30	.....	4.31	.....	4.31	.....	3.48	.....	4.08	.....	21.52
Edmonton	2.60	+1.82	2.71	+1.23	3.77	+0.96	3.91	+0.92	4.18	+2.16	3.16	+1.94	20.33
Prince Albert ..	1.16	+0.35	1.94	+0.73	1.73	+0.83	3.76	+1.33	6.04	+4.15	1.94	+0.70	16.57

GENERAL REMARKS.—The growing season of 1900 was characterised by considerable deficiency of precipitation in the easterly part of the Territories, and an excess in the north and north-westerly portions, while during harvest and for some time after heavy rain fell throughout the Territories delaying threshing operations seriously, especially in the north-westerly districts. The month of September was remarkable for the amount of electrical disturbance; bad thunder storms occurred at frequent intervals all over the Territories, and the lightning did considerable damage to stock and property. One man was killed near Weyburn. Severe hail storms occurred at several points during the same month, doing considerable damage to crops, while a storm approaching a cyclone in force did a great deal of damage to buildings and crops in the vicinity of Whitewood and Wapella on the twenty-fifth of that month.

The conditions at the close of agricultural operations were that the land was full of moisture when it froze up, and the heavy snowfall which has since taken place promises well for the supply of moisture at the commencement of operations in the spring.

The following is a summary, taken from the published records of the Dominion meteorological service, of the reports of Territorial observers for each month of the year :

JANUARY.—The temperature was for the most part abnormally high, and it was not until well on to the end of the month that any pronounced cold weather set in, and even then the cold was chiefly confined to the eastern portion of the Territories; Alberta and the greater part of Assiniboia remaining comparatively mild. The following are some of the reports received: *Calgary*—The chinook winds of December prevailed throughout January with bright weather. Very little fodder has been used yet, and the cattle retain their flesh. *Edmonton*—Every kind of stock looks well. *Prince Albert*—Very little snow on the ground. *Swift Current*—No snow on ground, remarkably fine and mild month, temperature below zero on five days only. Snowfall on four days, rain on one day.

FEBRUARY.—Bright and cold was the dominant weather feature of the month with very little wind and an almost entire absence of bad storms. *Swift Current*—No sleighing, stock wintering well. *Prince Albert*—Snow evenly distributed without drifts. *Calgary*—Cattle in good condition, still grazing on prairie from Calgary to boundary line. Very little fodder has been used yet.

MARCH.—The early part of the month was decidedly cold, and on the fourth very low temperature was recorded, but on the ninth a chinook began to blow in Alberta and gradually extended eastward over Assiniboia, and by the eleventh fairly mild weather was prevalent. In Alberta the weather continued mild and of a decidedly springlike type throughout the balance of the month, an average day temperature of 40 degrees being recorded at Edmonton and of 50 degrees at Calgary. Further east, however, in Assiniboia and Saskatchewan there was a return to somewhat colder again until the twenty-first, after which it was fairly mild to the end of the month. *Calgary*—Weather for March has made the season a record breaker as far as ranching country is concerned. Cattle have come through without loss and in good condition. Considerable beef is now being gathered from the ranges, although the cattle have had no fodder except what they have picked up on the prairies. Ploughing commenced a month earlier than last year, and the spring birds have arrived much earlier. Seeding will be pretty nearly done this week. *Medicine Hat and Dunmore*—Grass sprouting. *Qu'Appelle*—Snow practically gone, much water lying, summer owls arrived on twenty-ninth, ducks on thirty-first. *Swift Current*—Ice in creek broke up about the twentieth, and geese and ducks arrived on eighteenth.

APRIL.—Weather over the whole Territories was unusually mild. Seeding commenced early in month and with the exception of barley is completed. Heavy winds prevailed during the latter part of the month and a few light showers fell. *Cannington*—Willow in bloom, wheat well up, trails dry. *Pense* (Gatesgarth)—Seeding finished. Crows and gophers and robins appeared in beginning of month. *Moose Jaw*—Wild crocuses (Easter Anemone or Pasque flower) in bloom on seventh. *Chaplin*—Thunder and lightning on sixth. *Regina*—Geese, ducks, larks, frogs in first week. Maple buds opening on twenty-fourth. Mosquitoes seen and wheat up. *Calgary*—Weather very favourable for the ranchmen, as there has been no mortality among the calves born on the prairie so far. Grain in the southern portion of the country is showing up quite green and the grass is fully better than last year's at June first. Trees are beginning to leaf out. *West Prince Albert*—Seeding in some parts well advanced, in other parts greatly retarded by water on the ground. *Battleford*—Grass very good and vegetation, as a whole, much further advanced than usual. *Swift Current*—Mild, very little precipitation. Slight snowstorm night of fifteenth. Prairie looking green. Seeding in operation. *Qu'Appelle*—Frogs, fourth; meadow larks, fifth; gophers, eighth; robins and woodpeckers, ninth. Vegetation well advanced, wheat up in many places and growing well.

MAY.—In the Territories generally the season is in advance of the average. In most districts the rainfall has been sufficient and with the high prevailing temperature everything has come on very quickly. In Assiniboia the weather during the early part of the month was generally warm and dry with high winds from the north-west and south-east. Field crops making fair progress but gardens backward owing to lack of moisture. All progressing well since rains. Light but harmless frosts in early part of month. *Moose Jaw*—Sky generally clear with strong winds. Thunder on thirteenth and twenty-eighth. Wild lilies in bloom on twelfth; wild roses on twenty-third. *Chaplin*—Rainfall 0.22 inch; sky generally clear. *Crane Lake*—Rainfall 1.78 inch; sky mostly clear with strong winds. Very cold wind morning of twenty-third. *Regina*—Rainfall 2.10 inches.

Slight frost night of first. Violets in bloom on ninth, wild flax on twenty-first. Extremely hot and dry with high wind from south-east on twenty-seventh. Severe thunderstorm lasting about four hours during night of twenty-ninth with rain 1.36 inch. *Saltcoats*—Rainfall 0.58 inch. Generally cloudy and mild to warm. *Calgary*—Continued fine without any severe storms, although several have threatened accompanied by high winds which, in turn, have counteracted the effect of the rainfall which, under other conditions, would have been ample for grass and growing crops. Grain and grass are both very forward for this time of year. Garden peas are in bloom and wild roses have been out for two weeks. Cattle are very fat. *Medicine Hat*—Crops are two weeks in advance of average season. *Swift Current*—Warm and showery with several thunderstorms. Slight frosts on fifteenth and thirtieth, but without damage to gardens which are progressing rapidly. Prairie green and affording good pasture hay. Sloughs looking favourable. *Prince Albert*—Rainfall very even through this district. Crops in excellent condition. *Battleford*—Abundance of rain all through this district and vegetation luxuriant. *Qu'Appelle*—Vegetation fully a month earlier than usual. Ground dry, grain doing well in wet places but suffering on high land. Swallows and humming birds on twelfth.

JUNE.—In Assiniboia the month has been noted for small rainfall and high southerly and westerly winds. Such rains as fell were purely local and generally accompanied by thunder. On the twenty-first a heat wave arrived, lasting from twenty-first to twenty-third during which the thermometer ranged as high as from 100 to 107 degrees in the shade, accompanied by light south-west winds. Slight frost in places on the thirteenth. Some crops destroyed north of Moosomin by hail on twenty-sixth. Crops in places have suffered from drought, but where rains have fallen will yield fair returns. Insects numerous and troublesome. *Regina*—Conditions generally as above. Crops on summer fallow have stood drought well. Stubble crops poor. Rainfall for month 0.76 inch. Slight showers at intervals of a few days. Crop prospects much improved by good rain on eighteenth. Slight frost on thirteenth, damaged delicate garden stuff. Excessive heat twenty-first to twenty-third. Flowers: Gaura, second; bedstraw, fourth; gaillardia and wild rose, fifth; marsh potentilla, eighth; false mallow, ninth; gumweed, sixteenth; troxomin and coneflower, twentieth; snowberry, twenty-third; oxytropus splendens, twenty-fifth. *Prince Albert*—Weather favourable for crops which are well advanced. *Medicine Hat*—Crop prospects above average. Haying commenced. *Battleford*—The combined heat and heavy moisture throughout the month was very favourable to growth of all kinds. Crops excellent and hay in abundance everywhere. *Qu'Appelle*—Ground exceedingly dry, crops backward, vegetables a failure, prospects poor. *Crane Lake*—Rainfall 0.69 inch, high winds from west and south-west. *Chaplin*—Vegetables frozen on thirteenth; rainfall 0.75 inch. *Moose Jaw*—Maximum temperature 104 degrees on twenty-second with high wind. Heavy rain previous to hot spell. Crop prospects favourable, though on light lands and stubble hot winds have done much damage.

JULY.—Weather in open country has been dry with hot winds very injurious to crops and vegetation generally. Gardens have suffered severely. Crops in Eastern Assiniboia improved after rains in early part of month but in many places have been injured seriously since. There is difficulty experienced in getting hay in some of the more easterly portions of the

district. Reports of continued wet weather from wooded country in Saskatchewan, Alberta and Touchwood Hills district. Wild fruits at such places plentiful. *Regina*—Rainfall 2.04 inches; heavy local thunder-shower on fourth, with rain 1.26 inches covering an area of about six miles square. Several slight thunderstorms with rains. Little hail with thunderstorms on ninth, no damage, winds generally westerly. Flowers: Aster multiflora, fifth; purple aster, tenth; blue lettuce, fifteenth; golden-rod; twentieth. Barley harvest commenced on thirtieth. Flying ants appeared on the thirty-first. Ground dry and cracked. *Saskatoon*—Rainfall 1.10 inch, wheat ripening fast. *Crane Lake*—High westerly winds between fifth and seventeenth, prairie fires. *Chaplin*—Rainfall 0.10 inch, clear skies. *Salcoats*—Rainfall 2.04 inches. *Gatesgarth*—Rainfall 1.23 inch. *Innisfail*—Rainfall 3.88 inches. *Moose Jaw*—Rainfall 1.30 inch, westerly winds, blue sky prevalent, overcast on fifth and sixth with continued rain. *Calgary*—Month ushered in with daily showers, although there was not a large amount of rain. Different localities report very heavy showers in some places accompanied by hail. The grain crop is very rank and generally well advanced. Barley cutting commenced on thirty-first and will be general next week. Oats will follow shortly and wheat about the fifteenth of August. Some danger threatens the crop from the warm weather of the past few days accompanied as it is by scorching winds. The hay crop is abundant and there is a good prospect of the grass curing on the ground for winter fodder. *Medicine Hat*—Harvesting commenced, crops average. *Swift Current*—Very warm month, temperature fairly even. Several thunderstorms and more precipitation than last month though too late to improve produce. *Battleford*—Haying commenced but hindered by too much water in swamps. Grain crops could not look better. *Prince Albert*—Weather favourable for crops. Cutting commences next week. *Qu'Appelle*—Crops short and maturing too rapidly, will probably yield a quarter crop. Swallows gone two weeks before usual. Several kinds of birds flocking; ground very dry.

AUGUST.—The general tone of the reports received is not encouraging. The few local frosts which occurred did not do much damage, but the continued wet weather has been very disastrous to the crops and the phenomenal snowstorm in Alberta on the twenty-fifth was also very destructive. There was increased humidity at all points and severe thunderstorms during the month all over the Territories, causing much damage to stock and property by lightning; the continued wet interfering with haying and harvesting. Hail damaged crops at many points. Harvesting general from second to third week. Cyclonic storms at Fort Qu'Appelle on second and Whitewood and Wapella on twenty-eighth. At latter point many buildings badly damaged and some destroyed as well as much crop. *Calgary*—The cool weather which prevailed shortly after the beginning of the month greatly retarded the ripening of crop, still a large acreage in Central and Southern Alberta was harvested before the heavy snowstorm on the twenty-fifth. Storm began at 11 a.m. and lasted twelve hours; heavy storm, wet snow which melted as it fell till about evening. Scarcely any frost accompanied the storm and the great damage to crops is the lodgment which will necessitate much extra labour in harvesting operations. This is the first August snowstorm for at least seventeen years. *Prince Albert*—Slight frost reported in parts of district, crops not damaged. Harvesting stopped by rain. *Medicine Hat*—Grain harvested, roots and vegetables above average. *Swift Current*—Rainy month, several thunder

storms; haying not finished yet; stock looking well. *Qu'Appelle*—Weather wet and cool; grass quite green and still growing; harvest delayed. *Salt-coats*—Rainfall 4.40 inches.

SEPTEMBER.—Generally very unsettled, high winds, much humidity, considerable snow in latter part of month in south and north-west districts; wet interfering with threshing in east and damaging uncut and unstacked crops in north-west. Some grain in east injured in stack. *Battleford*—Harvesting finished. The early cut grains or about twenty-five per cent. of entire crop badly damaged by rain; balance excellent yield and quality. *Prince Albert*—Harvesting not finished on account of unfavourable weather. *Swift Current*—Rain every other day, snowstorm on twenty-fifth. *Calgary*—September weather has been very disappointing, and the outlook has been anything but cheering; while at first the weather was fairly good, a big storm of melting snow about the middle of the month soaked the grain in stock which was almost ready for stacking. About the twenty-second the barometer dropped very low and a violent storm of wind and rain and snow set in which was pronounced by old settlers as the worst storm for thirty years. The wind blew steadily at sixty miles or more per hour and the storm was pretty general over the whole of Alberta. A great deal of grain in Northern Alberta is still uncut, while that cut in central and other portions is mostly unstacked. *Qu'Appelle*—Stacking and threshing delayed by wet.

OCTOBER.—Heavy falls of rain and snow during the first ten days of month, especially in the north and west districts; generally mild and settled and favourable to farming operations since. *Calgary*—Notwithstanding some low temperatures the weather of October has greatly atoned for the bad weather of September. The crop in Central and Southern Alberta has all been stacked and is partly threshed; some phenomenal cold has been reported. Range stock is very fat and the outlook is very much brighter than at the close of last month. *Swift Current*—Fine clear month, fairly even temperature. Slight snowstorm early part of month which quickly cleared away. *Battleford*—The last half of month very fine. Geese and ducks still here.

NOVEMBER.—During the first twelve days of the month the weather continued comparatively mild, then occurred a change to severe cold which lasted until the twenty-fourth, after which date higher temperatures again prevailed. *Calgary*—The fine weather of the beginning of the month was followed by a severe snowstorm lasting four or five days, accompanied by a drop in temperature. Fortunately the high condition of the cattle enabled them to withstand the cold snap with but little damage and especially as the warm chinook which followed bared a considerable portion of the hill sides. Threshing operations which were stopped during the storm have again commenced, and the grain is turning out well considering the storm which prevailed before harvesting began. Sleighing was fairly good for about a week. *Regina*—Pleasant weather during early part of month, then colder with occasional snow, which soon disappeared; winds generally north-west and sometimes strong. Snow about six inches. *Battleford*—Saskatchewan river frozen over on fourteenth and teams crossing on the sixteenth.

DECEMBER.—Exceptionally mild during the greater part of the month. Much bright sunshine, few high winds and but two pronounced cold dips. *Calgary*—The month has been very noticeable for an almost entire absence of precipitation, either in the form of rain or snow and a great

deal of bright sunshine has prevailed. The Bow river has not yet been closed up. The cattle which had a hard time during November with the cold weather have recuperated all they lost at that time and are now sleek and fat and capable of enduring an average winter without much deterioration, although the November storm flattened the grass in many places which might cause loss if deep snow prevails during the latter part of the season. *Prince Albert*—Very mild first part of month. South Branch reported reopened in places. Roads good. *Regina*—Bright and mild generally to twelfth; from thirteenth to twentieth storms from north-west and south-east alternating with milder days. Slight occasional snow. Fogs and white frosts with south-east winds frequent. Last two days very calm and cold.

III.—TOTAL ANNUAL PRECIPITATION FROM 1886 TO 1900 INCLUSIVE.

STATION.	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
Regina	3.18	14.98	7.02	2.22	11.47	12.39	9.46	4.88	3.90	9.29	15.19	5.97	*8.66	14.22	10.95
Medicine Hat	5.47	8.43	11.98	6.08	7.79	9.70	7.81	9.08	10.09	11.39	11.21	11.77	15.90	21.17	22.05
Edmonton	6.59	9.48	15.88	6.48	19.30	15.03	11.43	12.34	12.27	10.77	9.50	12.16	10.90	20.89	27.81
Swift Current	7.45	13.88	9.96	6.37	13.04	17.68	12.18	8.68	6.62	9.50	9.62	12.23	15.25	19.40	13.94
Qu'Appelle	6.94	11.16	13.47	5.93	18.34	15.31	11.42	11.25	6.63	11.96	15.46	8.76	21.65	19.27	16.52
Calgary	7.28	10.15	12.40	5.88	10.70	8.93	5.47	6.88	8.49	10.76	8.68	15.69	16.75	27.90	18.57
Prince Albert	6.44	.....	.....	7.30	12.23	8.77	8.76	8.45	5.17	8.88	13.25	11.04	+13.35	29.88	22.40
Battleford .....	.....	.....	.....	.....	.....	7.41	10.63	9.24	9.79	10.56	8.65	14.09	14.15	18.96	20.41

IV.—TOTAL MONTHLY PRECIPITATION.—1900.

STATION	JAN	FEB	MAR	APR	MAY	J'NE	J'LY	AUG	SEPT	OCT	NOV	DEC	TOT'L
Athabasca Landing .....	.....	.....	.....	2.27	2.63	4.55	.....	2.91	3.11	0.67	0.25	0.40	16.79
Battleford	0.63	0.66	0.36	0.68	2.80	3.21	4.21	5.24	1.25	0.87	0.23	0.27	20.41
Banff	1.12	0.65	2.68	1.49	0.87	4.65	2.51	3.33	2.00	2.30	1.25	0.45	23.30
Chaplin .....	.....	1.00	0.30	0.23	0.22	0.25	0.10	0.55	0.72	0.60	0.60	0.20	4.77
Calgary	0.25	0.40	0.40	2.04	1.32	3.56	2.02	1.29	3.99	0.40	1.80	1.10	18.57
Calgary (2)	0.22	0.60	0.55	1.50	1.35	3.10	2.11	.....	.....	.....	.....	0.08	9.51
Cannington Manor	1.15	0.78	0.60	0.00	1.18	.....	.....	7.07	.....	.....	.....	0.60	11.38
Crane Lake	0.20	0.35	0.60	1.24	1.68	0.69	1.01	4.81	2.55	1.47	0.68	0.73	16.01
Crescent Lake	0.90	.....	1.07	0.04	1.15	1.40	1.22	4.84	2.35	0.64	1.16	.....	14.78
Coutts	0.20	0.32	0.73	1.82	1.82	1.16	0.72	1.95	2.94	1.32	1.00	1.63	15.61
Estevan .....	.....	.....	.....	.....	.....	0.58	1.77	2.39	3.41	1.08	1.00	.....	10.23
Edmonton	0.78	2.18	1.03	2.60	2.71	3.77	3.91	4.18	3.16	1.16	0.18	1.25	27.81
Gatesgarth .....	.....	.....	.....	0.12	1.43	0.93	1.23	3.86	3.24	0.46	.....	.....	11.27
Indian Head	0.10	0.50	0.45	0.27	0.80	0.65	1.73	4.85	3.71	0.50	1.00	0.80	15.36
Innisfail	0.26	0.57	0.70	2.45	2.39	4.18	3.88	2.99	4.31	1.05	0.60	0.28	23.66
Knee Hill	0.31	0.42	0.80	2.12	3.94	2.40	1.82	3.57	3.01	0.73	.....	.....	19.12
Macleod	0.13	0.70	0.43	0.60	0.81	0.28	2.67	0.64	2.39	0.78	0.60	0.05	10.08
Medicine Hat	0.47	1.04	1.05	1.25	1.62	2.26	2.67	5.65	1.92	1.02	1.95	1.15	22.05
Moose Jaw .....	.....	.....	.....	.....	1.51	0.19	1.31	2.09	2.41	0.67	.....	.....	8.18
Moosomin .....	.....	0.40	0.80	0.40	0.65	0.51	2.33	5.98	4.83	0.85	1.00	0.15	17.94
Muskowpetung	1.70	1.20	0.70	0.06	1.94	0.76	1.32	3.01	2.75	1.26	0.90	0.50	16.10
N. E. Beaver Hills	0.43	1.73	3.20	3.03	5.47	4.38	2.09	4.80	2.31	1.81	0.05	0.31	29.64
Pincher Creek .....	.....	.....	.....	.....	.....	.....	2.10	1.06	3.43	2.25	2.61	0.12	11.57
Prince Albert	0.95	0.79	0.47	1.16	1.94	1.73	3.76	6.04	1.94	1.33	0.59	1.70	22.40
Qu'Appelle	0.24	1.90	1.23	0.29	0.71	1.19	2.11	3.05	2.63	0.86	1.97	0.34	16.52
Red Deer	0.51	0.87	1.00	3.04	2.30	4.31	4.31	3.48	4.08	0.92	0.54	0.20	25.56
Regina .....	.....	.....	0.15	0.10	0.85	1.30	1.50	3.14	2.26	1.10	0.50	0.05	10.95
Regina (2) .....	.....	.....	.....	.....	.....	0.76	2.04	3.34	2.21	0.84	0.60	0.10	9.89
Saskatoon .....	.....	.....	0.30	0.20	1.48	1.24	1.10	4.27	2.02	0.99	0.36	.....	11.96
Saltcoats	0.90	0.36	0.60	0.15	0.58	1.40	2.15	4.40	1.95	0.15	1.00	0.40	14.04
Swift Current	0.14	0.36	0.57	0.42	2.49	1.38	2.42	2.75	2.48	0.47	0.46	.....	13.94
W. Beaver Hills	0.81	1.28	1.60	2.32	2.84	2.75	4.07	5.67	2.43	0.77	0.18	0.43	25.21
Weyburn .....	.....	.....	.....	.....	.....	.....	.....	8.03	3.81	1.54	1.50	1.50	16.28

V.—TEMPERATURE 1900

STATION.	JANUARY				FEBRUARY				MARCH				APRIL				MAY				JUNE			
	Mean		Date of Min		Mean		Date of Min		Mean		Date of Min		Mean		Date of Min		Mean		Date of Min		Mean		Date of Min	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
Athabasca Landing	23.4	49.7	-12.2	27	15.6	41.6	-34.0	14	27.8	55.0	-14.0	5	41.1	75.0	13.0	16	53.6	78.0	28.0	30	56.2	85.0	29.0	8
Banff	6.9	46.0	-24.0	27	-4.5	26.0	-40.0	8	0.0	44.0	-26.0	4	41.6	71.2	21.8	8	47.8	69.3	27.2	19	55.2	85.0	27.7	12
Battleford	22.1	50.0	-15.0	4	11.4	50.0	-27.0	15	28.2	60.0	-22.0	5	45.2	78.0	25.0	16	56.8	82.0	23.0	19	60.3	82.0	33.0	10
Calgary	23.8	52.5	-16.0	4	12.6	54.0	-26.9	14	28.5	64.0	-21.2	6	44.1	76.0	21.0	12	54.8	79.0	23.0	28	57.6	82.0	33.0	7
Calgary (2)													44.3	74.0	21.3	13	52.2	78.0	23.0	28	58.0	81.5	33.0	12
Calgary Experimental Sta.													45.8	77.0	15.5	16	54.5	80.0	12.0	2				
Cannington Manor	9.8	48.5	-27.0	28	-15.5	32.0	-32.0	8	11.1	45.0	-16.0	15	45.8	77.0	15.5	16	61.2	92.0	28.0	2	62.3	104.0	30.0	13
Chaplin	14.2	47.0	-22.0	26	-5.8	40.0	-33.0	9	20.0	52.0	-18.0	5	54.6	77.0	25.0	12	61.2	92.0	28.0	2	63.3	106.0	33.0	10
Crane Lak	24.0	62.0	-20.0	28	8.2	42.0	-32.0	8	26.1	59.0	-16.0	6	48.5	75.0	22.0	17	56.9	89.0	28.0	2	64.6	100.0	35.0	8
Estevan	17.1	48.0	-25.0	27	5.5	40.0	-40.0	8	19.9	55.0	-20.0	3	46.4	78.0	26.0	15	55.7	78.0	32.5	3	59.4	86.0	37.0	11
Edmonton	14.0	47.0	-30.0	27	5.6	46.0	-25.0	8	17.1	57.0	-25.0	12	47.3	83.0	12.0	17	57.4	89.0	18.0	2	63.2	107.0	30.0	9
Gatesgarth																								
Grenfell	7.3	43.0	-27.0	28	-3.8	34.0	-37.0	8	11.4	42.0	-27.0	4	47.0	81.0	18.0	16	56.1	94.0	21.0	2	63.3	106.0	32.0	13
Indian Head	20.2	62.0	-18.0	4	5.1	41.0	-36.0	8	22.9	63.0	-27.0	6	44.2	75.0	21.0	15	52.5	78.0	25.0	2	53.4	82.0	31.5	10
Knee Hill	28.0	58.0	-16.0	1	13.0	46.0	-32.0	8	30.6	64.0	-17.0	5	47.1	77.0	22.0	12	55.4	81.0	32.0	2	62.4	98.0	33.0	9
Macleod	24.6	62.0	-18.0	28	9.0	45.0	-34.9	8	28.7	63.8	-16.1	7	50.5	80.3	26.8	16	58.3	86.0	33.0	10	67.0	106.0	37.0	9
Medicine Hat	11.0	47.0	-26.0	28	-3.5	38.0	-33.5	9	14.9	53.0	-23.0	6	45.3	80.0	4.0	17	56.1	92.0	25.0	2	63.0	105.0	33.5	13
Moose Jaw					-7.1	29.5	-37.4	8	10.5	43.0	-24.7	13	46.0	77.0	13.8	15	54.7	92.0	14.8	1	61.4	102.0	33.0	10
Moosemin					-4.9	37.0	-37.0	24	11.1	45.0	-32.0	4	47.3	82.0	17.5	17	56.8	95.5	17.0	1	58.0	106.0	33.0	13
Muskowietung	7	44.0	-31.0	30	-10.2	21.0	-42.0	9					40.1	69.0	7.5	16	49.0	83.0	16.0	3	61.8	96.0	30.0	8
Conkup	-8.4	42.5	-40.0	30	-7.1	22.0	-44.5	9	11.4	43.4	-37.0	4	44.5	79.0	17.0	3	54.4	86.2	23.0	5	60.0	93.0	35.7	10
Prince Albert	3.1	53.2	-39.5	30																				
Fincher Creek																								
Qu Appelle	10.7	42.6	-25.5	30	-5.0	32.0	-36.5	8	12.4	42.0	-26.0	4	46.8	79.3	17.5	16	57.7	92.0	20.0	2	63.1	100.5	34.8	29
Regina									12.2	42.0	-23.0	6	47.1	89.0	12.0	17	56.8	99.0	29.0	2	62.6	102.0	33.0	13
Red Deer	21.9	57.0	-14.0	27	8.2	43.0	-26.7	14	22.9	52.9	-15.2	5	44.3	74.9	25.0	16	52.9	74.6	34.0	2	57.2	86.3	36.3	11
Saskatoon					-5.1	30.0	-45.6	13	19.0	42.7	-3.0	2	42.8	74.0	13.0	1	54.2	84.2	29.0	3	62.8	104.0	34.0	13
Swift Current	21.7	59.0	-16.5	27	4.2	40.0	-35.0	8	23.1	66.0	-16.0	6	48.7	74.5	23.5	12	57.5	90.0	28.0	1	65.8	104.0	32.0	10

TEMPERATURE, 1900

STATION.	JULY				AUGUST				SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER			
	Date			Mean	Date			Mean	Date			Mean	Date			Mean	Date			Mean	Date			
	Max	Min	of Min		Max	Min	of Min		Max	Min	of Min		Max	Min	of Min		Max	Min	of Min		Max	Min	of Min	
Athabasca Landing	53.9	84.7	31.8	51.1	81.0	27.0	27	45.2	78.0	13.0	25	35.6	67.0	8.0	30	10.3	54.0	-37.0	23	8.7	45.0	-27.6	31	
Banff	62.8	84.0	42.0	51.2	82.4	28.2	26	44.9	70.3	17.2	26	36.4	60.0	14.3	27	21.7	47.2	-32.4	20	23.1	44.3	-18.4	30	
Battleford	58.2	85.0	36.0	60.5	91.0	42.0	29	50.2	78.0	24.0	30	41.8	70.0	18.0	30	15.2	53.0	-21.0	21	13.4	43.0	-22.0	31	
Calgary	59.4	86.0	36.8	55.1	90.0	30.0	27	47.8	77.0	17.0	26	38.1	71.0	11.0	3	20.6	64.0	-30.0	20	27.8	50.0	-3.0	30	
Calgary (2)																								
Calgary Experimental Sta.				54.7	89.9	26.0	28					37.3	72.9	4.2	6	21.2	61.4	-33.0	20	21.5	49.1	9.2	30	
Canington Manor				63.8	94.0	35.0	28													9.9	36.0	-27.0	31	
Chaplin	65.7	92.0	40.0	60.1	87.0	38.0	26	46.4	75.0	21.0	24	40.1	60.0	25.0	30	20.6	55.0	-20.0	21	16.8	40.0	-17.0	29	
Crane Lake	65.3	97.6	42.0	61.3	98.0	34.0	27	50.1	80.0	27.0	25	44.5	70.0	17.0	7	20.7	61.0	-31.0	20	28.8	53.0	-17.0	30	
Estevan	66.6	97.0	37.0	65.5	97.0	38.0	25	51.1	78.0	27.0	16	44.3	72.0	24.0	7	15.7	52.0	-22.0	21	8.9	37.0	-21.0	14	
Edmonton	63.4	85.0	38.0	60.1	80.0	33.0	25	48.3	76.0	22.0	25	40.4	68.0	22.0	6	21.7	62.0	-16.0	19	23.1	44.0	-9.5	31	
Gatesgarth	65.2	100.0	38.0	63.2	99.0	40.0	48.28	49.9	85.0	20.0	30	43.2	73.0	19.0	7	15.8	58.0	-30.0	21	13.8	39.0	-25.0	31	
Gravel																								
Indian Head	64.3	97.0	38.0	61.1	98.0	35.0	28	50.9	78.0	25.0	30	45.0	71.0	18.0	28	16.3	52.0	-28.0	20	12.3	38.0	-19.0	30	
Kearney Hill	60.1	87.5	30.0	54.6	94.0	32.0	27	47.9	75.0	15.8	26	37.6	74.0	7.0	7	18.7	74.2	-41.5	20	23.0	54.0	-3.0	30	
Macleod	63.5	94.0	43.0	53.6	90.0	32.0	26	47.9	80.0	20.0	26	43.2	72.0	13.0	4	25.7	65.0	-29.0	20	34.2	56.0	-2.0	31	
Medicine Hat	63.0	101.8	44.1	63.4	97.0	32.0	27	53.4	81.3	27.5	26	44.9	75.8	18.5	7	23.6	67.8	-31.5	20	31.3	53.8	-9.0	30	
Moose Jaw	63.6	98.0	39.0	61.7	91.0	32.0	27	48.9	82.0	22.0	30	42.4	74.0	19.0	31	16.0	53.0	-31.0	21	15.9	53.8	-9.0	30	
Neomon.	61.9	85.0	31.0	61.7	91.0	33.0	27	49.3	75.0	25.0	26	43.8	74.0	21.0	21	12.3	45.0	-38.0	21	10.6	42.0	-14.0	30	
Neomon.	61.9	85.0	31.0	62.2	90.0	33.0	28	50.4	83.0	10.0	16	45.8	78.0	15.0	28	14.2	57.0	-32.0	21	10.5	40.0	-35.0	31	
Muskowpetung	63.4	97.0	32.0	62.2	90.0	33.0	28	50.4	83.0	10.0	16	45.8	78.0	15.0	28	14.2	57.0	-32.0	21	10.5	40.0	-35.0	31	
Onion Creek	63.2	97.0	38.5	62.2	94.3	33.0	28	49.3	84.0	25.0	26	41.7	65.5	19.5	28	12.5	38.0	-24.5	21	5.2	33.0	-33.0	31	
Prince Albert	60.4	87.0	30.5	55.4	91.0	33.0	28	49.3	75.0	25.0	26	41.0	64.0	21.5	1	13.0	46.0	-37.0	23	70.0	45.0	-25.8	31	
Qu Appelle	60.4	90.0	40.3	57.5	88.0	32.0	28	49.0	79.0	14.0	26	40.9	70.0	12.0	38.6	62.0	62.0	-27.0	21	35.3	58.0	-11.0	31	
Regina	63.8	93.0	39.3	62.5	97.0	35.0	28	50.7	80.0	24.0	30	44.3	70.2	20.8	7	13.5	51.0	-32.0	21	14.2	38.2	-23.3	31	
Red Deer	62.9	79.8	40.9	59.3	92.0	32.4	27	46.8	71.2	19.8	23	39.4	69.0	19.6	3	22.8	62.4	-30.4	21	12.0	39.0	-23.0	31	
Saskatoon	63.9	94.0	44.0	57.1	93.0	40.0	27	50.0	78.0	25.0	24	41.2	64.5	18.3	28	15.1	47.0	-36.5	22	28.6	49.0	-5.5	31	
Swift Current	66.6	95.0	40.0	62.9	95.0	39.0	5	51.4	80.0	23.0	30	43.6	70.0	13.0	7	19.8	59.0	-22.5	26	10.5	42.0	-25.0	31	

AGRICULTURAL STATISTICS.

The collection, compilation and publication of statistics concerning the various social and economical relations of life are now, by all civilised peoples, considered a legitimate and necessary function of government. In fact, government on rational and scientific principles is impossible without the information which may be derived from this source. Furthermore, it is work which can only be properly undertaken by a government department, as only such an institution can be provided, by legislation or otherwise, with the machinery to do it and at the same time is able to command the resources necessary to carry on a work of this nature which is not directly remunerative.

In no country in the world has this work been brought to a greater state of efficiency and practical utility than in the United States, where enormous sums are yearly appropriated by Congress for its prosecution. The United States (Federal) Department of Agriculture maintains a staff which is engaged in the collection of information with regard to acreage, crops, number and value of farm animals, to the number of 56,700 reporting monthly and 140,500 special correspondents who report at various seasons of the year. It also publishes periodically crop reports to the number of 200,000 per month, besides an even greater number of special reports when thought necessary. It is hardly necessary to point out that the expenditure which must be involved in carrying on work of this sort, would not be approved of unless really practical results of great importance to the farmers of the country were being obtained from it. The fact of the matter is that reliable information as to crops, markets, etc., placed in the hands of farmers at the proper time means dollars to them if they make intelligent use of it.

In the report of the Department for 1898 remarks were made at some length on this subject. It was pointed out, among other things, that lack of information as to available stocks of agricultural produce tended to create instability of markets, a matter which affects very closely the economic position of the country generally and of the farmer particularly. Under the universal law of supply and demand, the stock of any particular product available, or likely to be available, whether for home consumption or for export in any particular country, must necessarily affect the price of that product in the markets of the world. Canada exports yearly some seventeen million bushels of wheat, and of this the Territories contributes between from a fourth to a third part, a proportion which will necessarily increase by leaps and bounds from year to year. This ought to bring home to us the necessity for being able to furnish the public statements of the crop during the growing season in the Territories, from time to time, for the information, not only of the farmers but of transportation companies to whom the matter is one of vital interest. Indeed, the matter of transportation is one which affects the home market in a manner much more intimately than is generally recognised. If transportation companies are not able to form a fair estimate of the amount of grain they will be called upon to handle after any particular harvest, it is very likely that inefficient transportation facilities will be afforded and, in case of a heavy crop, these may prove quite inadequate for the export business at the time there is the greatest demand and consequently prices rule highest. As an illustration of this kind I quote a recent statement which appeared in *Bradstreet's*. "A dearth of cars suitable for transporting perishable goods is probably

responsible for the severe losses South California orange growers are now experiencing. *The San Francisco Examiner* claims that millions of oranges are rotting in packing houses all over California for want of cars to transport them across the continent." It is evident in this case there was failure for some reason or other on the part of transportation companies concerned to properly estimate the volume of business they would be called upon to handle. We have here, first of all, a loss to the orange grower who was not able to dispose of his oranges; secondly, a loss to the railway companies which did not haul oranges which they ought to have hauled and would have been paid for hauling; and, finally, a loss to the consumer, who did not receive oranges which he ought to have had. Had it been possible, in this case, for a reliable estimate of the crop to have been in the hands of the transportation companies in sufficient time, the necessary number of cars could have been provided and thus a great economic loss all round have been prevented.

Owing to the small appropriation available to the Department for statistical work and to the consequently limited machinery for doing it, all that has in the past been possible to do, has been to obtain statistical information with regard to the crops after harvest by means of returns furnished by threshers throughout the Territories. When this system came into operation, no great results were at first naturally expected, as the system, being a new one, would necessarily take some time to work smoothly. I am happy to say, however, that the results have far exceeded the expectations of the Department, as each year has shown a distinct improvement in the way returns have been sent in, and the returns for the year covered by this report are so complete that the very small coefficient of error may be practically disregarded. Unfortunately, owing to the exceptionally wet weather experienced during the threshing season, operations were so delayed, especially in the north-west portion of the Territories, that it was impossible for the Department to complete the compilation of returns until a comparatively recent date. As soon as possible after the completion of this work, results were placed in the hands of all boards of trade, transportation officials, bankers, members of the Legislative Assembly, members of Parliament, grain dealers, etc., besides being published in all Territorial newspapers. That this branch of the Department's work is very much appreciated by such men is quite evident from the many cordial letters of congratulation received with regard to the value of the information furnished. It is plainly noticeable, however, that something more needs to be done, especially in the way of securing and publishing one or more estimates made during the growing season, of the probable yield of crops. How best to do this is a problem which, in a country like the North-West Territories, is beset with considerable difficulties; but sooner or later, if the agricultural feature of the statistical work of the Department is to be made of the maximum benefit to the farmers and the public in general, it will have to be faced.

The crop districts remain the same as outlined in former reports of the Department, but descriptions of them are repeated for convenience of reference with remarks as to peculiar conditions prevailing during the growing season in each. Subjoined will be found tables giving results of threshing operations for wheat, barley and oats in each district, with totals for the years 1898 and 1899 added for purposes of comparison.

District No. 1 (South-east Assiniboia).—Comprises that portion of the country lying north of the international boundary, south of the southerly

limit of Township 10, west of the westerly boundary of Manitoba and east of the Third Meridian.

A large acreage was successfully sown, but the early part of the season was very dry and hot with high winds, and the crop presented a very poor appearance before the rains in August and September. These rains brought on a second growth of grain and weeds, and several hail storms did a large amount of damage in some portions of the district. Gophers were also somewhat destructive. The area threshed was 99,012 acres, but many of the farmers did not cut all they sowed, and a large quantity of oats was kept in the sheaf for feed. Much grain was damaged also by bad weather at harvesting. Reports were received from forty-one threshers and it would appear that the number of bushels of wheat harvested averaged 6.84 to the acre. Oats made a poorer return than wheat and under the existing conditions it is difficult to give absolutely reliable figures, but 13.12 bushels to the acre is probably about right. Rye yielded about 28 bushels, and flax 5 bushels per acre. Notwithstanding the discouraging season, a great deal of land was broken and prepared for crop next year.

District No. 2 (South-west Assiniboia).—Lies west of District No. 1 and east of the easterly boundary of the provisional district of Alberta, south of the southerly limit of Townships 10 and north of the international boundary.

Very little grain farming is done in this district, which is almost entirely devoted to grazing. Two threshers made returns.

District No. 3 (East Central Assiniboia).—Lies west of the westerly boundary of Manitoba, east of the easterly boundary of Range 7 west of the Second Meridian, south of the southerly boundary of Townships 20 and north of District No. 1.

In addition to the severe drought of the early part of the season, this district suffered severely from hail storms and heavy winds. The area harvested was 90,692 acres. Wheat averaged 7.91 bushels to the acre, but a large proportion was damp and sprouted. Oats also suffered from wet weather and frost to such an extent that very little is fit for seed. A small quantity of spelts was raised in the northern portion of this district. Reports were received from fifty threshers.

District No. 4 (Central Assiniboia No. 2).—Lies north of District No. 1, west of the westerly boundary of Range 6 west of the Second Meridian, east of the westerly boundary of Range 16 west of the Second Meridian, and south of the southerly boundary of Townships 24.

Weather conditions were similar in this district to the preceding. Although the damage was not so great from hail, nevertheless five or six bushels an acre were in many cases knocked out. About 1,500 bushels of wheat were slightly frozen and some threshers reported 10 per cent. to 15 per cent. sprouted. The crops from 144,272 acres were harvested, but those sown on stubble gave poor returns and many fields were very weedy and were left uncut. Oats were poor and most of the crop was unfit for seed. Very little brome seed was harvested owing to the early part of the season being exceedingly dry. A large amount of land was prepared for cropping next season. Reports from sixty-seven threshers were received.

District No. 5 (Central Assiniboia No. 1).—Lies north of District No. 1, west of District No. 4, south of the southerly boundary of Townships 24, and east of the Third Meridian.

A heavy shower of rain about the end of May made the conditions a little less unfavourable than in districts further east, and consequently the

average yield per acre is higher. Although the season was a bad one, some good crops were raised on summer fallow, while those on stubble were in many cases complete failures and not worth cutting. Some farmers ploughed down such crops. The wet weather during and after harvesting damaged a good deal of grain in stook and stack, but still a number of threshers reported 50 per cent. of the wheat as No. 1 hard. The area harvested was 90,426 acres, and threshers to the number of sixty-three operated in this district.

District No. 6 (West Central Assiniboia).—Lies north of District No. 2, west of District No. 5, east of the easterly boundary of the provisional District of Alberta, and south of the southerly boundary of Townships 24.

Owing to a somewhat heavier rainfall in this district during May and June, the crops gave a higher average yield per acre than in those previously mentioned. The acreage under cultivation (549 acres) is not large, as the sheep and cattle interests under ranching conditions predominate. Three threshing outfits did the work of the district.

District No. 7 (North-east Assiniboia).—This district comprises the country contiguous to the Manitoba and North-Western railway. It is bounded on the east by the westerly boundary of Manitoba, on the north by the southerly boundary of the provisional District of Saskatchewan, on the west by the westerly boundary of Range 12 west of the Second Meridian, and on the south by a line commencing at the Manitoba boundary south of Township 20, thence due west to the easterly boundary of Range 7 west of the Second Meridian, thence due north to the south-easterly corner of Township 24 Range 7, thence west to the easterly boundary of Range 13 west of the Second Meridian.

In this district the climatic conditions resemble very much those of the district lying to the south thereof, but the average per acre was slightly higher. Mixed farming is followed to some extent, special attention being given to cattle. The grain off 25,091 acres was threshed by eleven machines. Wheat was more or less damp or sprouted, and probably half of the oats and barley are not fit for seed. About 400 bushels of rye were reported threshed.

District No. 8 (North Central Assiniboia).—Lies south of the southerly boundary of the provisional District of Saskatchewan, west of District No. 7, east of District No. 9, and north of the northerly boundary of Townships 23.

Only about 700 acres were cropped and the threshing was done by one outfit. Most of the land in this district is unsettled or devoted to cattle raising.

District No. 9 (North-west Assiniboia).—Lies south of the southerly boundary of the provisional District of Saskatchewan, west of Range 9 west of the Third Meridian, north of District No. 6, and east of the provisional District of Alberta.

No settlers.

District No. 10 (East Saskatchewan).—Being that portion of the provisional district of Saskatchewan lying east of the easterly boundary of Range 10 west of the Third Meridian.

There was ample rainfall during the growing season for the production of good crops. The wheat average and quality were good. Oats were frozen slightly but looked well. The area from which wheat, oats and barley were threshed was 35,445 acres, and in addition to that considerable land had been seeded to rye, flax, spelts and brome grass. Nearly 300

bushels of flax, 150 of spelts, and 75 of brome were reported to have been threshed. Thirty-nine threshers reported operations.

District No. 11 (West Saskatchewan).—Being all that portion of the provisional District of Saskatchewan lying west of District No. 10.

The land under cultivation in this district is principally situated in the vicinity of Battleford and Bresaylor. Four machines threshed the crops of 2,315 acres. The grain was an excellent sample and the yield good. There was plenty of rain during the months when it was most wanted, and although August was very wet, the succeeding month was more favourable for harvesting.

District No. 12 (North Alberta).—Being all that portion of the provisional District of Alberta lying north of the northerly boundary of Township 44.

The growth during the summer was very luxuriant in this district, which, like the two following, is entirely devoted to mixed farming. More sunshine was, however, required to ripen the grain properly and permit of harvesting. The total precipitation for the year was excessive, being 27.81 inches. Hailstorms destroyed many crops and a great amount of damage was done by the snowstorms of August twenty-sixth and the early part of September, which lodged the uncut grain and delayed harvest. Most of the wheat was only fit for feed, and although many samples of oats were plump and heavy, their vitality was seriously impaired by frost or heating in the stack. The barley produced was of a very poor quality. Some spelts were grown and yielded a little over twenty bushels per acre, while rye gave thirty bushels per acre. The returns of seventy-nine threshing machine operators are included in the statistics of this district.

District No. 13 (North Central Alberta).—Lying between and including Townships 44 and 37.

The conditions here were very little better than in the preceding district. Fully fifty per cent. of the wheat was frozen and unsaleable. Oats were in some cases fairly good and in one case yielded as high as 105 bushels per acre, but difficulty was in most cases experienced in harvesting. Good samples of spelts and flax were also produced. The area harvested was 14,511 acres of which only 1,840 was in wheat. Twelve threshing machines operated in the district.

District No. 14 (Central Alberta).—Lying between Townships 36 and 29 inclusive.

With weather similar to that which prevailed in Districts No. 12 and 13, great difficulty was naturally found in securing the crops, which were of a rank growth. After the August snowstorm the ground was so wet in places that binders could not work. In June hailstorms cut down the crops on some farms and the result was material delay in ripening. Very little good wheat was threshed, but in some of the drier sections oats yielded well. Ten machines did the threshing of the crops from 5,957 acres of which only 465 had been sown to wheat.

District No. 15 (South Central Alberta).—Lying between Townships 20 and 28 inclusive.

Although the early part of the summer was very favourable and there was promise of magnificent crops, there was a want of warmth and bright ripening weather towards fall. The same snowstorm which affected the northern portion of Alberta visited this district and caught a large percentage of the crops still standing. This necessarily caused much trouble

in harvesting after the snow went and materially reduced the yield which nevertheless compares well with other districts. In addition to the crops of wheat, oats and barley threshed from 10,768 acres, there were also returns of rye 3,000 bushels, and brome grass 800 bushels from unknown areas, also some timothy. Fourteen threshing outfits made returns of their work.

District No. 16 (South Alberta).—Being all that portion of the provisional District of Alberta lying north of the international boundary and south of the southerly limit of Townships 20.

This district was favoured with good crops which were fairly well harvested, as the yield per acre will show. In some sections, particularly about Cardston, gophers proved very destructive. A considerable quantity of fall wheat was raised and is highly thought of in Southern Alberta. The area threshed was 10,686 acres devoted to wheat, oats and barley. About 25 bushels of timothy seed was also reported. Fourteen threshers were working in this district.

DEPARTMENT OF AGRICULTURE

CROP STATISTICS.

DISTRICT AND YEAR	WHEAT			OATS			BARLEY		
	Bushels	Acreage	Yield per Acre	Bushels	Acreage	Yield per Acre	Bushels	Acreage	Yield per Acre
1.... { 1898..	727,954	48,530	15.80	276,219	14,384	19.61	45,518	1,882	23.77
1899..	1,261,759	80,279	15.71	509,148	16,721	30.44	44,685	2,187	20.41
1900..	554,852	81,057	6.84	217,183	16,551	13.12	12,694	1,404	9.04
2.... { 1898..	46,210	1,925	24.00	17,840	482	37.50	200	10	20.00
1899..	35	3	11.66	9,086	190	47.84			
1900..	80	2	15.00	5,040	224	22.05			
3.... { 1898..	1,142,119	71,372	16.20	237,118	8,469	28.28	37,462	1,629	23.33
1899..	1,079,784	65,472	16.78	470,828	17,911	26.28	33,755	1,658	20.34
1900..	598,254	71,807	7.91	162,572	17,433	9.32	14,472	1,452	9.96
4.... { 1898..	1,460,317	80,348	18.00	379,249	14,558	25.72	23,597	1,204	19.60
1899..	1,908,666	104,949	18.75	595,496	19,938	29.86	19,866	856	23.20
1900..	908,491	118,752	7.65	359,802	24,474	14.66	15,813	1,046	15.11
5.... { 1898..	900,034	42,859	21.03	278,761	11,614	24.20	14,360	756	19.03
1899..	1,361,063	51,057	26.65	489,993	13,921	35.19	12,822	648	21.31
1900..	861,794	73,320	11.75	250,276	16,386	15.27	7,080	720	9.83
6.... { 1898..	500	28	18.75	8,000	160	51.75	1,550	42	38.33
1899..	1,255	32	39.20	19,785	378	52.03	2,104	47	44.82
1900..	1,548	47	32.93	14,846	466	30.77	338	56	23.27
7.... { 1898..	175,528	13,487	13.27	248,868	9,218	27.00	8,454	496	17.20
1899..	164,609	10,595	15.53	246,913	8,298	29.75	7,640	373	20.52
1900..	115,975	12,369	9.37	224,943	12,279	18.31	5,980	448	13.49
8.... { 1898..	no returns			no returns			no returns		
1899..	"			"			"		
1900..	10,083	486	20.74	5,316	153	34.74	429	28	15.32
9.... { 1898..	no returns			no returns			no returns		
1899..	"			"			"		
1900..	"			"			"		
10... { 1898..	283,925	17,002	17.65	127,205	6,840	18.69	49,803	2,275	22.00
1899..	238,849	15,632	15.27	164,527	5,655	29.10	37,539	1,834	21.10
1900..	400,616	23,535	17.02	269,344	9,303	27.86	59,250	2,607	22.73
11.... { 1898..	14,049	702	20.33	16,152	538	30.66	1,915	87	22.00
1899..	7,518	440	17.08	12,472	453	27.53	1,193	53	22.50
1900..	24,028	1,165	20.62	36,653	1,071	34.22	1,942	79	24.58
12.... { 1898..	627,201	24,122	26.10	1,115,358	24,246	46.53	213,103	6,551	31.02
1899..	690,642	27,604	25.02	1,406,864	32,802	42.87	120,389	4,560	26.46
1900..	443,423	23,699	18.78	1,476,913	45,930	32.15	123,543	5,101	24.22
13.... { 1898..	27,432	1,246	22.25	134,853	3,290	41.25	17,268	617	28.75
1899..	30,647	1,608	19.05	163,450	3,804	42.66	23,846	768	31.08
1900..	34,152	1,840	18.56	389,395	10,492	37.11	59,268	2,179	27.20
14.... { 1898..	14,896	572	26.00	130,204	2,830	46.50	15,603	447	34.83
1899..	8,838	471	17.70	126,822	2,885	44.42	7,202	306	23.53
1900..	8,377	465	18.01	178,051	4,803	37.06	16,329	689	23.70
15.... { 1898..	74,905	3,404	22.18	182,226	4,799	37.41	16,938	604	28.00
1899..	36,231	1,707	21.30	215,006	5,288	40.78	14,485	535	27.41
1900..	36,292	1,650	21.99	360,042	8,326	43.24	25,076	792	31.66
16... { 1898..	47,608	1,983	24.00	164,206	3,649	45.00	15,752	492	32.00
1899..	66,237	3,674	18.03	255,646	6,724	38.01	10,865	451	
1900..	60,379	2,670	22.61	276,276	7,548	36.60	10,502	468	22.44
Territories									
1898....	5,542,478	307,580	18.01	3,040,307	105,077	28.93	449,512	17,092	26.29
1899....	6,815,623	363,523	19.02	4,686,036	134,938	34.81	337,421	14,276	23.62
1900....	4,028,294	412,864	9.75	4,226,152	175,439	24.08	353,216	17,044	20.72

AGRICULTURAL EXPERIMENTS.

Owing to the very unfavourable weather which prevailed in Central Alberta last fall, I regret to state that some of the experimental work initiated was almost without results. This applies particularly to the three lines of wheat experiments to test the merits of the Dawn, Preston and Red Fyfe varieties. They were all frosted. Notes were, however, taken

during the growing season which will be of considerable value for future reference. The Dawn wheat made a very promising growth during the latter part of the summer and gave indications of early maturity, a very important quality in any variety of wheat introduced into the semi-arid portions of the Territories.

The precipitation at the experimental station during the season was considerably above the average, hence the artificial watering of grain was not resorted to. This state of affairs, while highly satisfactory from the point of view of the farmer, also detracted from the interest and value of our investigations.

An early snowstorm lodged the barley very considerably, and the results obtained cannot, therefore, be considered as strictly reliable, the yield in every instance being much below what it would have been had it been found possible to remove the crop before shelling out. In this connection it might be well to state that experiments to ascertain the best variety or varieties of malting barleys are of a most important character. Some of the varieties tested were obtained from the agricultural experimental station at Bozeman, Montana, where the soil, altitude and climatic conditions are most similar to those of Southern and Central Alberta and Western Assiniboia, the samples being those of the best known malting varieties. It is a significant fact that the State of Montana has acquired a world-wide reputation for the production of malting barley. Millions of bushels of Gallatin Valley barley, raised under irrigation, are shipped annually to European countries and to the Eastern States, and the prices received by the producers are most satisfactory. In this connection it is of interest to quote the following from a letter on the subject by Prof. Shaw:

(1). The best and most universally grown variety of barley in this State is the Chevalier, a two-rowed kind. (2). For brewing purposes the quality is unexcelled in any part of the world. Large quantities are shipped from this valley to Buffalo, New York and Germany. (3). Sometimes a small portion of the crop is caught by frost in a very short season, but this is exceptional. (4). The barley crop is sown from April 20 to May 10, and harvested from August 20 to September 1. (5). Market price varies from 80 cents to 95 cents per cwt. Last year it was below these figures, this year averaged 87 cents and is now selling at 95 cents. (6). Almost entirely used for brewing or malting purposes, either at home or abroad. (7). Gallatin Valley is the chief centre for brewing barley and has an area of twenty-five by thirty miles, good, rich, black soil and all under irrigation. (8). The crop is entirely grown under irrigation here. (9). We cannot get perfect development without irrigation, because of light rainfall and rapid evaporation. (10). The best barley land here consists of a rich loam containing much humus. The barley is all grown on the valley bottom, and one end of the valley has an altitude of 4,800 feet. (11). On deep soil the barley is only irrigated once during the first two weeks of July. On shallower soil water is applied twice from June 20 to 30, and again from July 15 to 25. This, of course, depends somewhat on the soil, season, progress of crop, etc. (12). The average yields from irrigated lands ran from fifty-five to sixty-five bushels per acre. I have seen whole farms, well cultivated and managed, average seventy-five bushels per acre.

The line of experiments initiated last year, will, of course, need to be continued for a number of years in order to determine the most favourable variety for our conditions, and to provide for its general distribution throughout the irrigated portions of the West.

The experiments with fall wheat commenced last year on the station are also of considerable interest and importance. Very successful crops of this cereal have been raised in Southern Alberta for a number of years, and considerable discussion has taken place in the press and at farmers' meetings during the year on the advisability of the general introduction of fall wheat. If the plots seeded last year prove to have withstood the past winter it may at once be taken for granted that this cereal will before long occupy a prominent place in western agricultural operations. The past

winter was a most trying one, little or no covering being afforded the fall crops, conditions were, therefore, exceptionally favourable for testing the ability of fall wheat to survive the erratic winters of the semi-arid portions of the Territories.

The only new work which is to be initiated upon the station during the coming year is the seeding down of a number of plots with permanent hay and pasture grasses. The irrigated portions of the West will always be devoted chiefly to stock raising, and it is, therefore, of the utmost importance to conduct investigations with a view to introducing those forage plants which respond most generously to artificial watering and are best suited for semi-arid conditions.

The Department is very much indebted to Professor Shaw, of the Montana Agricultural College, to Professor Saunders, Director of the Dominion Experimental Farm, and to Mr. Angus Mackay, Superintendent of the Indian Head Experimental Farm, for valuable assistance and seeds in connection with our experimental work.

I may say that during the growing season I took occasion, from time to time, to inspect the work done by Mr. P. T. Bone, manager of the station, and found it in every way satisfactory. The following is his report upon the year's work:

Report of Manager, Calgary Experimental Station.

I have the honour to submit herewith, report of the work done on the Calgary experimental station during the year 1900.

The months of January, February and March were on the whole mild for winter months and were favourable for stock. Spring opened in the early part of April, and subsequent weather induced rapid germination and continued growth. Showers were frequent during the summer and grains of all kinds gave promise of an abundant and early crop.

Lack of heat in August, however, greatly retarded ripening, and an unfortunate snowstorm, followed by hard frost on the twenty-fifth of the month, just on the eve of harvest, did great damage to nearly all the crops in the district.

Some few fields had been cut previous to this date and escaped injury. The weather for the greater part of September and the first week of October was stormy and wintry like. On sixteen days of that period rain and snow fell, giving a total precipitation of fully $6\frac{1}{4}$ inches. This abnormal state of the weather greatly delayed stacking operations and not until the middle of October could these be undertaken with safety. The latter part of October and the first half of November, although frosty at nights, were all that could be desired, and the grain in stook in the district was finally secured.

The lateness of the harvest work, however, left little or no time for fall ploughing. Scarcely any of this has been done. During the third week in November 11 inches of snow fell. This was accompanied by a cold wave and the thermometer indicated 33 degrees below zero.

December has been unusually mild with chinook winds prevailing.

The programme drawn up at the beginning of the season for work on the station has been practically carried out as far as the weather conditions would admit. Except for timothy no need was found for irrigation. This, however, was irrigated with benefit. The plots seeded in the previous year to timothy and bromus gave fair results. No difference is

apparent in these crops owing to the different quantity of seed used. These quantities were 6 lbs. and 12 lbs. per acre for timothy, and 10 lbs. and 20 lbs. for bromus. It would appear from this that the smaller quantity of seed should in each case be sufficient.

The plots seeded with different varieties of different grains suffered greatly by the storm and frost of August. Cutting could after this be done only one way and in a very unsatisfactory manner. Considerable loss was sustained, particularly in the oat plots, through broken straws and shelling out of grain. The results of these experiments given in the following tables are, therefore, of little use for purposes of comparison, but will, of course, be repeated.

The experiment with pease completely failed in giving any results.

The potato crops likewise suffered greatly from the inclement harvest weather and the results from experiments with them are much below expectation.

WHEAT.—Size of plot, one acre, on Summerfallow.

VARIETY	Seed per Acre	Method of Seeding	Date of Seeding	Date of Cutting	Yield per Acre	Weight per Bushel	REMARKS
Dawn . . .	1½ bush.	Press drill	April 16	Sept. 11	31 bush.	62½ lb	Frozen.
Preston. .	"	"	"	"	28½ "	54½ "	"
Red Fyfe	"	"	"	" 21	29½ "	47½ "	Badly frozen

BARLEY.—Size of plot, one-half acre, on Summerfallow.

VARIETY	Seed per Acre	Method of Seeding	Date of Seeding	Date of Cutting	Yield per Acre	Weight per Bushel	REMARKS
Canad'n Thorpe	2 bush.	Press drill	May 9	Sept. 12	36 bush.	42 lb	Partly frozen and badly discoloured.
" "	"	"	" 25	" 21	27 "	33½ "	Partly frozen and badly discoloured.
French Cheval'r	"	"	" 9	" 19	44 "	43 "	Partly frozen and badly discoloured.
" "	"	"	" 25	" 21	34 "	32 "	Partly frozen and badly discoloured.
Golden Thorpe..	"	"	" 9	" 20	45 "	35½ "	Partly frozen and badly discoloured.
" " ..	"	"	" 25	" 22	30 "	34½ "	Partly frozen and badly discoloured.
New Zealand. .	"	"	" 9	" 20	48 "	40½ "	Partly frozen and badly discoloured.
" " ...	"	"	" 25				Failure.

OATS.—*Size of plot, one-half acre, on Summerfallow.*

VARIETY	Seed per Acre	Method of Seeding	Date of Seeding	Date of Cutting	Yield per Acre	Weight per Bushel	REMARKS
Victoria Prize...	2½ bus.	Press drill	May 3	Sept. 5	66 bush.	43 lb	Fair quality.
" " ..	"	"	" 14	" 12	46 "	37 "	" "
Improv'd Ligowo	"	"	" 3	" 6	53 "	47 "	" "
" " ..	"	"	" 14	" 12	41 "	45 "	" "
Banner.....	"	"	" 3	" 10	60 "	42 "	" "
"	"	"	" 14	" 21	64 "	35 "	Partly green.

RAPE.—*Size of plot, one-quarter acre, on Summerfallow.*

VARIETY	Seed per Acre	Method of Seeding	Date of Seeding	Date of Cutting	Yield per Acre	REMARKS
Dwarf Essex ..	4½ lbs.	Br'd cast	May 23	Nov. 3	23,878 lb	Loss in yield through shrinkage, due to hard frost before cutting.
"	"	Drills, 18 in. apart	"	"	25,264 "	Loss in yield through shrinkage, due to hard frost before cutting.

POTATOES.—*Size of plot, one-twentieth acre, on Summerfallow.*

VARIETY	Seed per Acre	Method of Seeding	Date of Seeding	Date of Raising	Yield per Acre	REMARKS
Amer. Beauty..	20 bush.	Planted in drills 30 in. apart.	May 23	Oct. 26	190 bus.	Injured by frost.
Sharps Early...	"	"	"	"	215 "	" "
Earliest of All..	"	"	"	"	205 "	" "
Amer. Wonder.	"	"	"	"	290 "	" "
Brownwell's Winner	"	"	"	"	85 "	" "

HAY.

VARIETY	Number of Waterings	Date of Irrigating	Date of Cutting	Yield per Acre
Timothy.....	0	.....	July 27	1,500 lb
"	1	June 1	"	2,000 "
"	2	June 1 and 19	"	2,300 "
Bromus.....	0	.....	Aug. 20	1,500 "

Besides these experiments having definite results this year others were started which can only be properly and fully reported on later. These were:

To determine the practicability of growing alfalfa.

To arrive at the best method of eradicating sweet grass.

For the first of these experiments two plots of one acre each were set apart. The land was summer fallow and the alfalfa seed was sown broadcast

at the rate of 18 lbs. per acre, alone on one plot, and with oats drilled at the rate of $1\frac{1}{4}$ bushels per acre on the other, and the plots lightly harrowed. This was on the fourth of May. The catch is very thin and so far does not promise much.

For the eradication of sweet grass a series of experiments was commenced of a similar nature, all tending toward the end of killing the weed by a smothering crop.

The wetness of the season, however, as in the previous year, greatly favoured the growth of this grass.

The first experiment in the series consisted of ploughing the sweet grass under about the middle of June, and seeding thickly with barley, rye and oats, each on different subplots. These grains came up and grew well for a time, but the snow and frost of August completely stopped all growth. The subsequent September snowstorms made the damage complete. No success can, therefore, be looked for from this experiment.

The second experiment in this connection was commenced by ploughing about the middle of June, backsetting two weeks later and then seeding down with *bromus inermis* sown broadcast at the rate of 14 lbs. to the acre. The *bromus* seed caught fairly well and gives promise of a crop that may eventually smother out the sweet grass.

The third experiment has another end in view besides the smothering out of the sweet grass. The crop used in this case is fall wheat, so that the possibility of growing this in the district may be determined as well. The ground was ploughed in the latter part of July and well harrowed until first of August. Fall wheat at the rate of $1\frac{1}{2}$ bushels per acre was then drilled in on one half of the plot, and on the fifteenth of August the same was done on the other half of the plot.

The weather conditions at the time of making this experiment were more favourable than at that of the others. Dry weather at the time of ploughing and for a while afterwards very materially stopped the growth of the sweet grass. The wheat has come on well and went into the winter with quite a matted growth. Should it survive the winter, its early spring growth must doubtless enable it to get well ahead of the sweet grass and eventually smother it.

Meteorological instruments were received and set up in July, and monthly summaries of the readings therefrom are herewith appended.

METEOROLOGICAL RECORD.

MONTH	Maximum Temperature	Minimum Temperature	Average Maximum	Average Minimum	Mean Temperature	Date of Maximum	Date of Minimum	Rainfall Inches	Snow Inches	Total Precipitation in Inches
August.....	89.9	26.0	69.8	38.9	54.3	1	26	*1.543*	*	1.543
September.....	78.3	14.5	59.4	34.6	47	6	26	*	*	5.15
October.....	72.9	4.2	50.5	24.1	37.3	18	6	0.21	11.6	1.37
November.....	61.4	-33.0	34.3	8.0	21.2	11	20	0.0	11.0	1.1
December.....	49.9	-9.2	38.7	16.3	27.5	6	30	0.0	0.75	0.075

*NOTE:— A great part of the snow which fell in August and September was soft and melted as it fell and a correct record of it could not, therefore, be kept. It is thus included in the rainfall for these months.

In deciding on a programme for the coming season it will be well to have a considerable part of it, for the reasons already stated, a repetition of the experiments with grains and pease herewith reported on. The grains have all been shown to be desirable varieties, but more definite information regarding their growth and yield in this section of the country is needed before a reliable comparison can be made. The later sown plots of the oats and barley were so evidently inferior to the earlier sown plots that it need not, however, be necessary to repeat that part of the experiments.

In this connection it may be well to refer to the report for 1899, of the director of the Dominion experimental farms. A summary is there given of results of early, medium and late sowings, with oats, barley and wheat, extending over a period of ten years. These experiments show that the most favourable time for sowing these crops at Ottawa is about one week after the ground is in a condition when sowing is practicable.

The shortness of the season in this district makes early sowing imperative, so that the question of getting better results from late sowings can hardly be considered. The experiments with grains, therefore, may be restricted to repeating the variety tests with or without irrigation as the season demands.

Experiments with timothy under irrigation will be continued, and in addition bromus sown last summer on a plot capable of being watered can be similarly experimented on. The value of these grasses for making hay has been well established and experiments to determine how best to obtain the greatest yield must be appreciated.

While experiments with potatoes and roots are of value, the liability to loss by severe frost in the early part of October will always make the growing of these crops on any extended scale a hazardous venture. Of much greater importance is the determination of suitable varieties of pasture grasses, clovers and forage plants, and work in this direction should form a prominent part in the coming season's experiments. I would suggest tests of the following varieties:

Red top—*Agrostis vulgaris* or *Agrostis alba*.

Orchard grass—*Dachylis glomerata*.

Meadow fescue—*Festuca elatior*.

Alsike clover—*Trifolium hybridum*.

After carefully studying the records of the above varieties as reported by United States experimentalists, I have come to the conclusion that they are worthy of a trial under irrigation at this station.

SOIL ANALYSES.

Soon after work had been initiated upon the Calgary Experimental Station, steps were taken to gather samples of the soil and subsoil of the cultivated area and of the adjoining virgin prairie for analysis, in order to determine the mechanical composition of the soils and to ascertain whether there had been any considerable deterioration in the available plant food in the former through successive cropping. The land upon which the experimental work is conducted is probably the oldest cultivated field in the semi-arid portion of the Territories, and the analyses in question are, therefore, of peculiar interest.

Soil samples were also obtained from a side hill, one from a point lying immediately above an irrigation lateral and the other from a point an equal distance below it, which had been irrigated regularly for the past three years. The particular object in view was to ascertain whether the suspended matter contained in the irrigation waters, which had been deposited upon the land from time to time, had added materially to the fertility of the soil, or whether, on the contrary, valuable constituents had been washed out, or deleterious salts had been brought to the surface, and also what the general mechanical effect of artificial watering had been upon the soil.

The following is a report upon the analyses of the surface soils submitted, by Professor Shutt, chemist at the Dominion Experimental Farm, Ottawa. It is regretted that the tedious nature of such investigations and the limited time at the command of Professor Shutt prevented him from making a quantitative analysis of the corresponding subsoils.

Report of Professor Shutt on Central Alberta Soil Analyses.

In August, 1899, samples of soil from the north-west quarter of Section 21 Township 23 Range 1 west 5th Meridian, were received from the Commissioner of Agriculture for the North-West Territories with a request for their analysis. Upon this tract of land the agricultural experimental station of the North-West Territories is situated (Calgary), and the location from which the samples were collected is the bench land of a valley falling away from the banks of the Elbow. Mr. Chas. W. Peterson, Deputy Commissioner of Agriculture, writing of the soils says that the valley at this point is about one mile in width and that a few poplars are appearing on the bench and that cottonwood and spruce grow well at the river bottom. The soil from Plot 1 (see table of analyses) "has been cultivated for a long time and is full of weeds. The soil represented by Plot 2 is "Virgin prairie and well fitted for either cultivation or grazing." It has been irrigated. Plots 1 and 2 are closely adjacent areas.

Two further samples from the North-West Territories Government and collected on the south-west quarter of Section 15 Township 23 Range 1 west of 5th Meridian, were forwarded in December, 1899. Writing of these soils Mr. Peterson says that "one (Plot 4 in table) is taken from dry "unirrigated land, fifty feet from upper side of irrigation ditch, while the "other (Plot 4 in table) is taken from irrigated land, fifty feet from lower "side of irrigation ditch and one hundred feet from foregoing sample. "The surface soil on this area is from two to six inches deep and the "general character of the locality may be described as rolling prairie. "Stunted poplars grow in south side of the valley, which is an old water "course one thousand feet wide. Under irrigation, it would make a very "good grazing land and produce fair crops of grain."

All the foregoing surface soils were accompanied by their subsoils, but unfortunately time did not permit of their examination.

ANALYSES OF CENTRAL ALBERTA SOILS.—*Results Recorded on Water-free Soil.*

Plot No.	LOCALITY	Organic and Volatile Matter	Clay and Sand	Oxide of Iron and Alumina	Lime	Magnesia	Potash	Phosphoric Acid	Soluble Silica	Total	Nitrogen	AVAILABLE		
												Potash	Phosphoric Acid	Lime
1	N.W. Qr. Sec. 21 T. 23 Rg. 1 W. 5th.	18.61	73.05	6.57	1.08	.346	.438	.249	.021	100.37	.660	.032	.01069	.5925
2	N.W. Qr. Sec. 21 T. 23 Rg. 1 W. 5th.	13.69	76.71	7.90	.71	.431	.518	.205	.0067	100.17	.530	.0349	.00928	.498
3	S.W. Qr. Sec. 15 T. 23 Rg. 1 W. 5th.	16.12	76.56	6.54	.90	.902	.383	.238	.082	101.72	.549	.0279	.0030	.440
4	S.W. Qr. Sec. 15 T. 23 Rg. 21 W. 5th.	13.30	75.52	6.57	1.28	.985	.380	.1833	.032	100.26	.574	.0353	.01201	.5679

Plot No. 1.—Surface soil, marked “Cultivated.” It has the appearance of a rich loam of good tilth and one capable of yielding good crops when supplied with a sufficiency of water. It is quite black from the presence of organic matter and presents many features in common with the fertile black loam of the prairie.

Plot No. 2.—Surface soil marked “Virgin prairie.” Very similar in appearance to that of Plot 1, but its organic matter is more fibrous and consequently less humified.

Since in all essential particulars these soils are of the same nature and character, it will be of advantage to discuss their data together.

Both soils may be considered as light to medium loams, sand predominating, and especially rich in organic matter and nitrogen. Tested with litmus paper neither show acidity or alkalinity. A careful test proves the absence of all deleterious and alkaline matter.

We cannot be said as yet to have established standards of fertility for Canadian virgin soils, but from the examination of a number of such soils we have arrived at certain limits between which most good agricultural soils are to be found. These limits, as regards nitrogen, potash, phosphoric acid and lime, are discussed at length in the report of this division for 1897, and in brief in the present report. A reference to these figures and to the data presented in the foregoing table gives evidence of the excellent quality of both of these soils; they are undoubtedly well supplied in all the essential elements of plant food, a very fair proportion of which appears to be in a more or less immediately available condition.

Though the soil from Plot 1 is stated to be cultivated, and from Plot 2 virgin prairie, a comparison of their data does not reveal any exhaustion of fertility in the former due to cropping; indeed, in several important features No. 1 is the better of the two. In potash only is No. 2 the richer. It is quite possible that originally these soils were not “identical” or that the amount of plant food extracted has been so small compared with that present in the soil as not to be detectable by ordinary methods; but whether such be the case or not it is quite evident that they do not serve to illustrate that truth of which we have in past reports brought forward several instances, namely, that there is a marked decline in both “total” and “available” plant food, due to a successive cropping in cases where no form of manuring is practised.

A special inquiry in regard to these soils was with respect to their richness in lime. Though not ranking with calcareous soils, they certainly show a very fair percentage of this constituent and probably at present

quite sufficient for the best returns. There is no reason to suppose that the herbage would be deficient in this element or that cattle or horses grazed thereon would be lacking in bone forming elements. Evidently the lime is not altogether in what might be termed a locked-up condition, the percentage available being large. The ratio of the available to the total lime is the same for both soils.

Irrigated and Nonirrigated Soils.

The chief object in examining soils from Plots 3 and 4 was to ascertain what effect irrigation might have had upon the plant food present, sample No. 3 being from a nonirrigated and No. 4 from an irrigated area.

In general appearances, these samples are similar to Nos. 1 and 2—black loams of loose texture in which sand predominates. They both show a fair amount of fibre. No. 3 (not irrigated) is neutral to test paper; No. 4 (irrigated) is very slightly alkaline.

The following deductions may be made from the chemical data. In "total" potash the soils are alike; in "available" potash No. 4 is slightly the richer. The "total" phosphoric acid in No. 3 is higher than in No. 4, but the amount of this element immediately available in the latter is four times that in No. 3. Whether this may be due to irrigation is not by any means clear, but the fact is worthy of note and deserving of further investigation. In nitrogen the percentages are almost identical. The irrigated soil (No. 4) shows a somewhat larger amount of lime, which may be due to the deposition of lime from the irrigation water, or more possibly brought up from the lower soil by evaporation of the seepage water. It will be noticed that the ratio of "available" lime is practically the same for both soils.

These, like Nos. 1 and 2, are soils of more than average fertility. Though not so heavy as the wheat lands of the prairie further east, they will undoubtedly give excellent yields, providing the climatic conditions and more especially the water supply are propitious.

SENECA ROOT.

The high price quoted for seneca root in the spring of 1900 caused an unwonted interest to be displayed in those sections of the country where it was known to grow in abundance. Inquiries were numerous regarding the nature and appearance of the plant. A number of specimens were furnished to persons making inquiries and to the Board of Trade and newspaper offices at Edmonton, where they were placed on exhibition.

It may be well here to give some information regarding the plant and its uses. It is a low growing perennial and its several slender stems branch from a central root of a somewhat woody nature. The stems have small leaves on each side and terminate in a spike of small whitish flowers. The proper time to gather it is after the seeds have formed and before frosts occur as there is then most strength in the root, which should be washed and dried before being marketed. These roots are used in the manufacture of cough medicines to a large extent as will be gathered from the following extract from a trade paper:

"In regard to the seneca situation, would say that during the spring 'root was received very fast. Probably 100,000 lbs. came in at the three

“leading markets, viz., Minneapolis, St. Paul and Winnipeg. Dealers “became frightened and cut prices unwarrantedly and rapidly, and prices “declined from 40 cents to 23 cents in two months. Merchants and “diggers noted the heavy decline on account of the high prices to start “with and stopped handling it, and there have been scarcely any receipts “for the past six weeks. Cannot hear that much has been dug. The “weather was very hot and vegetation dried up so that it could not be “found readily, and since the hot weather it turned in and rained in the “seneca country until the ground is so wet that it cannot be dug. It is “thought about all the old seneca root went into consumption by spring “and up to that date it looks as though there would not be half enough dug “this year to supply the demand. Orders are very plentiful, the prices “have reacted, and now no large amount can be bought under 35 cents “and some dealers are holding for 40 cents. Three dealers hold the stock, “and it is not thought that they have a very large quantity, as they are “anxious to increase their holdings.”

For several years the price ranged at about 16 to 17 cents per pound and the demand was not brisk.

Throughout the northern portions of the Territories the seneca root grows abundantly on the open lands, but is not found in the woods. Gathering is generally carried on by Indians or halfbreeds, but during the past season many foreign immigrants have turned their attention to this industry and from Yorkton some thousands of pounds were exported. To these people the work proved quite remunerative, but, of course, no ordinary farmer could profitably occupy his time at collecting this root.

NOXIOUS WEEDS.

The departmental administration of the Noxious Weed Ordinance and the appropriation set apart in that behalf, is being systematised as rapidly as the circumstances admit of. When the matter was first taken up some years ago, a great deal of difficulty was experienced in administration, but most of the local inspectors are now fully acquainted with their duties and powers and the Department has consequently been relieved of a great deal of unnecessary office work. It was found advisable last season to materially increase the number of local inspectors. At the beginning of the season twenty inspectors were acting, while towards the close of the work the number had reached thirty. During the year the inspection system was extended to the district of Alberta. Flying inspection trips had previously been made by the chief inspector, who reported strongly in favour of active work in that part of the Territories. It was found that a number of the worst weeds of Manitoba and Assiniboia had already obtained a strong foothold, particularly along the Calgary & Edmonton line, which rendered it advisable to provide local inspection.

The season in Eastern Asiniboia, where the bulk of the inspectors are located, was extremely dry, and for that reason the expenditure upon the destruction of weeds within local improvement districts was not as large as had been expected. The total number of cases dealt with was 53 and the total amount expended \$539.98. Another effect of the dry season was the shortness of the straw, which made it inexpedient in many cases to insist upon straw, containing a large percentage of noxious weed seeds, being destroyed. In lieu thereof the Department took steps to compel the

owners of infested straw to safeguard the interests of the neighbourhood by fencing the stacks.

I append herewith a report of the Chief Inspector of Noxious Weeds, Mr. T. N. Willing, which shows that he did considerable travelling during the year. His duties are gradually becoming more onerous and important and partaking more of an educational than administrative nature. One very beneficial effect from the appointment of this officer, is the influence the annual inspection has had upon owners and managers of mills and elevators throughout the Territories. Their defiant attitude towards the provisions of the Ordinance in the past was notorious. I am, however, pleased to be able to state that with very few exceptions owners and managers have complied with the requirements of the Department in the way of the disposal of screenings and other refuse.

As indicated in former reports, the most important feature of the noxious weed work is the educational. Once the public has been made thoroughly alive to the great importance of keeping the spread of weeds within bounds, and realises that it means dollars and cents to the farmer, the difficulty is at once solved without any coercive steps or legislative restrictions, and in a vastly more satisfactory manner than could possibly be worked out by official machinery much more complete and comprehensive than that at the command of this Department under present conditions. Arrangements were, therefore, made by you to secure the services of Professor Fletcher for a series of lectures on the subject of noxious weeds during last season. Unfortunately the time at the disposal of that gentleman was very limited. Professor Fletcher arrived at Regina early in July and addressed the following meetings :

Prince Albert, Friday, July sixth ; Colleston on the seventh, Melfort on the ninth, Kinistino on the tenth, Harperview on the tenth, St. Louis De Langevin on the eleventh, Lindsay on the twelfth, Willoughby on the twelfth, Rosthern on the thirteenth and Duck Lake on the thirteenth.

Professor Fletcher was accompanied by yourself and Mr. Angus Mackay, Superintendent of the Experimental Farm, Indian Head. Most of these meetings, which it was thought well to devote entirely to the Prince Albert district, were fairly attended, and if the volume of correspondence which was afterwards initiated with the Department, on the subject of noxious weeds, by residents of the districts visited, is any indication as to the popular interest aroused, there can be very little doubt that Professor Fletcher's trip had a most beneficial influence upon the farming community in Saskatchewan.

While on the subject of educational work, it would be well to mention that a very useful work might easily be done and is, I understand, being done in some cases, by teachers in rural public schools in the way of directing the attention of their pupils to dangerous weeds. A more practical and useful application of nature study could scarcely be made. The only text book required would be the Departmental weed bulletin, which could be supplied free of charge, and specimens of weeds might be collected and preserved for future reference. Collections made by schools could be forwarded to the Department, and doubts as to nomenclature might be set at rest, and specimens not already found could be furnished. By prosecuting such field studies an interest would be awakened that a mere showing of mounted specimens would not inspire.

The weed bulletin prepared last year is nearly exhausted now, some 4,800 copies having been distributed. Under your directions arrangements

have been made for a revised and enlarged issue of 10,000 copies. It was felt that the illustrations had hitherto been rather defective and an expert photographer was therefore commissioned to reproduce specimens from nature of some of the worst Territorial weeds. Negotiations were also opened up with the Departments of Agriculture of the Provinces of Ontario and Manitoba with a view to obtaining the best possible illustrations of weeds which it was considered advisable to show in the new issue of our bulletin. The Department is under obligations to Professor C. C. James, Deputy Minister of Agriculture of Ontario, and Mr. Hugh McKellar, chief clerk of the Department of Agriculture for Manitoba, for the valuable assistance given in the way of providing the cuts of electro-types required. The new issue of the weed bulletin will be a very superior publication and will also be more extensively illustrated than former editions.

A matter which has been referred to in previous reports, is the difficulties in the way of the successful administration of the Ordinance in connection with the ever increasing number of foreign colonies and settlements throughout the Territories. A very large percentage of the people composing these cannot read English, and, therefore, have no means of acquainting themselves with the provisions of the law. It may make the difficulties of the situation more apparent when it is stated that fourteen different tongues are spoken in a district covered by one of our inspectors. As a rule these people are law abiding citizens and willing to comply with the requirements of the Department, and it is worthy of consideration whether information, in condensed form, on the subject of noxious weeds could not be prepared in some of the most important languages for the use of the many foreign settlers throughout the country whom it is very desirable to reach. Good work might also be done amongst these people through the agency of the public schools. Very often the children are able to speak English and, if the proper information were imparted to them, would be in a position to warn their parents.

There is another subject which is yearly becoming more and more important, and that is the question of poisonous weeds. Very frequent complaints have been received in the Department during the year in connection with the death of stock supposed to be caused by poisoning. I do not think that any feasible legislative safeguards could be adopted, but I would strongly recommend that, where possible, all such cases should be investigated in order to determine the particular plant or plants which cause these fatalities. More extensive information could then be given in the Departmental weed bulletin than it has been found possible to insert in the past, and in this way stockmen would receive warning and could herd their cattle and sheep off places where these fatal plants grow during certain seasons of the year.

Report of Mr. T. N. Willing, Chief Inspector of Noxious Weeds.

A number of new inspectors were appointed last season with each of whom, while at work, I spent a few days in order to instruct them in the proper manner of conducting the field work, making returns in accordance with our methods of procedure, and in the names and nature of such weeds as particularly called for their attention.

I left Regina on the thirtieth of May for Moosomin, whence I drove towards Birtle. The crops were looking very backward owing to the

dryness of the season and had been slightly frosted. I then drove south of Langenburg, where an abundance of lamb's quarters and buckwheat, a good deal of tansy mustard and some hare's ear mustard were noticed in the crops. There had apparently been too little moisture to sprout seeds on land intended for summer fallow. Throughout the country north of Langenburg and Churchbridge I found similar weeds and conditions.

At Churchbridge Russian pig weed appeared to be very plentiful about the stock yards. On the fifth I drove with Mr. Minhinnick to the Logberg district. Little land was under cultivation along our route, which lay through an Icelandic settlement, where more attention is paid to cattle than to crops. Abandoned farms were seen, but the fields had usually reverted to grass and other native growths. The following morning Inspector Einarsson drove me in an easterly direction through the Galician settlement, where hare's ear mustard was present in most fields and wild mustard in some, due to dirty seed having been sown. The weeds were generally very young but flowers and pods were already noticed on stink weed and hare's ear mustard, which latter had not made much growth owing to the drought. In the afternoon I was present at a meeting of the Logburg Agricultural Society and addressed them on the subject of weeds, and was afterwards driven to Saltcoats.

On the eighth June Inspector Moffatt drove me through his district. We found stink weed and hare's ear mustard on one farm, the owner of which was not aware of the nature of the weeds. The inspector and I drove to a lake where several cattle had died from suspected poisoning last summer. Nothing was found growing there of a known poisonous nature, but *Oxytropis deflexa* was seen, which had been suspected as the possible cause by a local veterinarian. Canada thistles were found growing on the right of way of the railway a little west of Saltcoats station. The section foreman was notified to destroy them.

The soil of the Saltcoats district is all more or less gravelly and light, and the prairie is covered with poplar bluffs. Many farms were deserted some years ago and are now covered with native growths. On cultivated land hare's ear mustard, tansy mustard and shepherd's purse were frequently seen.

On the ninth June Inspector Baker took charge of me and drove me to his farm. On the way we looked over some abandoned places. One of these was badly infested with hare's ear mustard; it had been cut and raked last season but not burned. Many stunted plants were seen and in some places there were patches about a foot high, with pods about three inches in length. The appearance of the place would indicate that the mustard would soon be choked out by wolfberry and other native growths. I recommended that the scythe should be used where the mustard was long enough to permit of it. Very few fields were free from hare's ear mustard, and we also found several patches of stink weed. We called on many of the overseers and discussed the weed question with them. The crops generally were looking well, but some fields where the soil is light, were badly drifted, owing to rather high winds. After inspecting the country south and east of Clumber we returned to Mr. Baker's place. On Monday he took me through his district towards Crescent Lake, where the condition of farms was similar to that of those seen on Saturday. A good deal of tansy mustard was growing on abandoned lands. On the land intended for summer fallow there was little growth of weeds. This shows that much would have been gained by discing such land in the fall or early spring.

In the afternoon Inspector Moore drove me towards Yorkton. A large portion of the way was through an Indian reserve without cultivated land, but where the road was graded a few plants of hare's ear mustard were seen, and considerable maple leaf and spear leaf goosefoot. A great deal of false tansy and evening primrose was found throughout the country. The following day I accompanied Mr. Moore south-east of Yorkton and looked at the north-east quarter of Section 32 Township 25 Range 2 west of the Second Meridian, where there is an abandoned field badly infested with stink weed. On this place some expenditure was made by the Department, but after that about five of the eight acres were ploughed presumably by order of the owners, a loan company. The ploughing was left rough, making it impossible to mow the stink weed, which has sprung up more thickly than ever. On the other portion of the field this weed has been very much checked by the wild growth. I advised discing, so that the rough land might be in a condition to cut over later, if necessary. This land lies on a well travelled trail across which the weed has spread into the brush. The people seem to be well aware of the bad character of stink weed, but there are many other weeds that they neglect. One abandoned field on which hare's ear mustard was very bad last season shows little sign of it this season. Russian pig weed (*Aryris amarantoides*) is abundant where old camps have been located and in the vicinity of stockyards along the line.

On the thirteenth June I left for Winnipeg and, according to instructions, called on the Manitoba Department of Agriculture to inquire as to the steps which were being taken regarding the grasshopper outbreak. I was given to understand that Virden was the most westerly point where the grasshopper (*M. spretus*) had made its appearance up to that time.

On the fifteenth June I went, by way of Brandon, to Carnduff to meet Inspector McGregor. After spending a few days in the vicinity of Carnduff, I accompanied him to the Carievale district. The hare's ear mustard and stink weed were short, and very little growth was yet made of tumble mustard because of the dryness of the season.

From Alameda I drove with Inspector McKnight, examining lands which had been complained of last season and on which Government work had been done. There was no growth of any account on abandoned land. Returning to Regina, on the twentieth, I saw Russian thistle still growing on the embankment opposite the C. P. R. garden at Moose Jaw.

At Fort Qu'Appelle on the twenty-first, I met Inspector McNaughton with whom I proceeded in a south-westerly direction and saw some fields in which the grain was very backward and stink weed quite ripe. On the following day we drove toward the south-east and found that stink weed was very prevalent about fields, roads and yards. It seems to be the weed of the district, which fact would justify inspection work being started earlier than in most other sections.

On the twenty-fifth June I left for Lethbridge and Cardston. I drove with Inspector Williams south from Cardston, where we found a field, belonging to one of the best farmers of the district, badly infested with false flax, wild and hare's ear mustard. Few fields are without these weeds and wild oats are plentiful. Cow cockle is often seen and was common, they stated, in Utah. Wild oats were brought in from Montana with seed and feed grain. We then drove towards Leavitt and saw similar and other weeds in abundance. Several very fine fields of fall wheat were noticed and I was told that this grain averaged forty bushels to the acre last season.

I spent the thirtieth interviewing farmers in Calgary. I was informed that stink weed was common in the Springbank district and hare's ear mustard north of the Bow river. Driving south the following day I noticed ball mustard on several places and stink weed on one farm near the Macleod trail. I instructed the overseer to have some Canada thistles mowed on a property near Calgary.

At Innisfail I instructed Inspector Percy B. Gregson to begin inspection work at once.

I spent several days driving about the Edmonton district and concluded that no neighbourhood needed the services of an inspector more than this. Most of the fields were yellow with ball mustard, false flax was abundant, shepherd's purse covered the roads and red root was growing about the town. Native brome was very plentiful among the grain, even overtopping it, although the former was over four feet high.

Having arranged with the secretary of the Strathcona Agricultural Society to address meetings at Clover Bar on the tenth, Poplar Lake eleventh, and St. Albert on the twelfth, I went south to Lacombe and drove to Waghorn to the residence of Mr. Gregson. While in that neighbourhood I procured specimens of seneca root, for which numerous inquiries had been made. Crops did not seem to be so badly infested with weeds about Lacombe as further north.

I returned to Edmonton on the ninth July and, on the following day, drove with Inspector Brunelle to the Clover Bar district, and found stink weed on Section 6 Township 53 Range 23 and a few plants of hare's ear mustard on Section 5; but the weed most strongly in evidence all through was ball mustard. The first named field was mowed, raked and burnt. We had a very well attended meeting at the Clover Bar school house, and the following weeds were placed on the table: stink weed, shepherd's purse, hare's ear mustard, ball mustard, tansy mustard, tower mustard, wild mustard, wormseed mustard, false flax, lamb's quarters, red root, spearleaf goosefoot, mapleleaf goosefoot, false tansy, evening primrose, Canada thistle, prairie thistle, Drummond's thistle and blue lettuce. On the eleventh I drove with Mr. Brunelle to Fort Saskatchewan and, by way of Belmont and Horse Hills schools, to the Poplar Lake district. As in other portions of the Edmonton district, the fields were here yellow with ball mustard, some wild mustard and a great deal of false flax, and the roads were covered with shepherd's purse. At the school house I addressed such of the farmers as took interest enough in weeds to face a heavy thunderstorm, in the midst of which we had to return to Edmonton.

We drove to St. Albert on the twelfth to a meeting arranged by the Strathcona Agricultural Society. The attendance was small, as few seemed to know anything of the meeting, owing to short notice. A number of people expressed the wish that meetings had been arranged for other points.

The inspector on the south side of the Saskatchewan, Mr. Toll, drove me to the Fort by way of the Clover Bar and Agricola settlements. On the way we found some of the farmers pulling hare's ear mustard, which was plentiful in some fields. All through the country no pains seem to be taken to destroy weeds about the edges of fields. Ploughing for summer fallow is altogether too late as the weeds are well advanced towards ripening before being turned in.

The agricultural society at Fort Saskatchewan had a very well attended meeting which I addressed on the subject of weeds.

I saw stink weed, perennial rag weed, Canada thistle, wild mustard, red root, shepherd's purse, sheep sorrel and ox eye daisy growing on the Calgary & Edmonton right of way at Stratheona, where stock cars had been cleaned out. The ditches were full of alsike and Dutch clover, on which could be seen numerous honey bees. I have been informed that some farmers in the district have kept these insects successfully for a number of years, and that an excellent quality of honey has been produced.

Having received instructions from the Department to make a collection of grasses, I drove to Leduc and gathered a number of well grown species. On the seventeenth I took train for Wetaskiwin, and proceeded to Olds on the eighteenth. A heavy rain was falling and all roads were in a bad state. On the nineteenth July I visited the district north of Olds in order to identify a plant which was suspected of having caused the death of a cow. It proved to be larkspur, which has also been suspected of causing trouble in the Innisfail district this year. A hailstorm did considerable damage to crops north of Olds about the twelfth June, but the grain came up again and, at the date of my visit, was heading out. Where the hail struck weeds were not conspicuous, but on other farms a good deal of ball mustard could be seen, but was not so plentiful as it had been in previous years owing, no doubt, to spring ploughing having been delayed by the wet season.

On the twentieth July I drove south-east from Olds towards the Rosebud, where I obtained some good grasses. Returning by way of Carstairs and Didsbury, I saw a number of fields of good grain which were fairly free from weeds. I was informed by the overseer that Canada thistles were growing where an old railway construction camp had been, and I gave instructions to have them destroyed. By means of the overseers, I had a number of weed bulletins distributed through the Didsbury district. Near the Dog Pond creek considerable hare's ear mustard was seen, and it seems to have been there several years.

According to instructions I returned to Wetaskiwin on the twenty-fifth and drove west, seeing some fields that had been somewhat damaged by hail. Ball mustard and false flax were plentiful, and I also found wild and tumble mustard. In the country between Wetaskiwin and Battle river I saw many fields foul with weeds, interspersed with clean farms and magnificent crops. Specimens of hare's ear, ball, tumble, wild tansy and worinseed mustard, false flax, shepherd's purse, pepper grass, wild oats and ox eye daisy were labelled and left on view in town. In accordance with instructions, I inspected the north-west quarter of Section 6 Township 33 Range 28 west of the Fourth Meridian, belonging to Mr. McLaurin, and there found a bad crop of ball mustard. I returned to Regina on the twenty-ninth July and on the thirteenth August I again left for Alberta on weed inspection and for the purpose of collecting an exhibit of grains and grasses, and on the following day drove out from Calgary to the experimental station, but found that the grain was not ripe although the growth was heavy and well advanced. I procured, however, at Craighurst Farm *bromus inermis* and timothy of fine growth.

In the Fish creek district I noticed ball mustard in a number of fields, also lamb's quarters. Wild buckwheat was also abundant. Canada thistles were growing on the roadway near Fish creek bridge, and tansy mustard was somewhat abundant along the irrigation ditches and edges of fields, while abandoned lands were mostly overgrown by sage, wolfberry, rose bushes and sweet grass. A quantity of that malodorous weed, the spider flower (*Cleome integrifolia*), was growing by the roadsides and ditches.

In the Pine creek district the condition of fields was much the same as already described, although in some crops there was a notable absence of weeds. From the farm of Mr. P. Cleland, where there was a magnificent growth of various grains, I procured some good sheaves of beardless barley.

Monday, the twentieth August, I spent on the north side of the Bow river, and observed ball mustard and false flax on several farms, hare's ear mustard on one place and a considerable quantity of stink weed on several others. I got some good sheaves of oats from Messrs. Wallis, Beveridge and Cossar, whose crops were partially cut.

Continuing my drive on the following day I looked over a number of abandoned fields, but failed to find any noxious weeds, which apparently have been introduced to the district since these fields were under cultivation. On the farm of Mr. Phalen a fine crop of rye, almost six feet in height, was being harvested and I was kindly allowed to take sample sheaves. It was my intention to have spent more time between the Bow river and Langdon, but as a heavy wind storm arose, I turned again towards Calgary to place my load of sheaves under cover.

On August twenty-second, according to instructions, I drove across the Sarcee reserve and up Fish creek beyond Priddis to gather seed of native brome grass, which in places grows abundantly there, for experimental purposes. Grain crops were not noticeably weedy, but were in some cases much affected by rust and frost. When not driving in the country owing to unfavourable weather, my time was devoted to curing and preparing the sheaves which I had gathered. Snow fell on the twenty-fifth August sufficient to lodge any grain uncut. This snow, coming as it did several weeks earlier than in any former season and following a period of very unfavourable ripening weather, caused great difficulty in harvesting heavy crops. In a few days, however, most of the snow was gone and binders were again at work.

While driving towards Springbank, I noticed hare's ear mustard and stink weed on the roadways, and on examining adjacent fields found that the latter was growing abundantly in many places, as were also lamb's quarters, wild buckwheat and some ball mustard.

Between Pine and Sheepcreeks, considerable grain has been harvested before the storm and the growth had been too luxuriant to permit of weeds showing to any great extent, but sufficient were seen to indicate the necessity for prompt action to prevent their further spread. In some cases my attention was called to a weed which had been unduly plentiful in the early part of the season and, until it ripened, had kept back the grain very much. This was the spearleaf goosefoot. As nothing was to be gained by a longer stay in the Calgary district, owing to the unsettled weather, I returned to Regina on the second September.

Following the plan adopted last year, I attended the several shows held by agricultural societies, with a full exhibit of pressed specimens of weeds, and also as many green samples as could be procured in the various localities. The Departmental bulletin on weeds was freely distributed at all points. On the second and third August I was at Fort Qu'Appelle show with the Government weed tent, and was assisted by Inspector McNaughton in gathering specimens and answering questions relative to them. Considerable interest was manifested in the exhibit, which might have been made much more attractive had the weather permitted the display of my mounted specimens. At Moosomin on the seventh and eighth August I did not use the tent, but was given space in the exhibition

building to show dry specimens and a large assortment of living weeds, procured in the neighbourhood by Inspector Fyke and myself.

I was only able to be at the Regina exhibition the second day, the ninth. Space having been reserved for our weeds in the upper part of the building, a good display was made, but was not visited by the farmers to the extent it should have been. Inspector Lambert brought in an assortment of weeds from the country, which was largely supplemented by a selection from the town.

The date fixed for a show at Wapella was the tenth and I was there with the tent and weed exhibit, but the weather was so unfavourable that the directors of the society postponed the fair to a later date. I was, however, requested to address those farmers who were in town. A few minutes walk was sufficient to enable me to procure all the weeds necessary to illustrate my remarks. The attendance at this meeting was all that the waiting room at the station could accommodate.

I attended at the Calgary show from the tenth September with the weed tent. By an early morning walk along the railway line and about town I secured a further supply of weeds and was able to make a show that was not at all creditable to the district. On Monday, seventeenth, I packed, for shipment to Regina, such samples of grains and grasses as I had secured and returned to headquarters by next train.

Previous to attending the last mentioned fair, I addressed, by request, a well attended meeting of the South Qu'Appelle Agricultural Society on the eighth September. At this meeting the subject of weed destruction and the effects of various methods of cultivation and seeding were discussed in an interesting manner. Weeds for reference were readily procured as usual.

During the summer I spoke on the subject of weeds and their destruction at seven meetings in various parts of the country, and attended four agricultural exhibitions with an extensive display of mounted and living specimens. In addition to this, a set of weed specimens was sent to the East Moose Mountain Agricultural Society for exhibition.

During the year a great many plants were received in the Department for identification from all over the Territories, and the required information was given in all cases.

I inspected the elevators at Wascana siding on the twenty-eighth October and found that a quantity of screenings, largely composed of seeds of hare's ear mustard, were lying outside the elevator of the Winnipeg Elevator Company. I laid information against this company and on the third November the case was tried, the defendants pleaded guilty and a fine of five dollars and costs was imposed.

According to instructions, I continued my inspection of the grain elevators on the twenty-first November. At Moose Jaw a new elevator and flour mill has been erected, and is run by D. McLean. Steam power is used and foul screenings are burned. The other elevators at this point are as reported last year, and are disposing of screenings in a similar manner. Half of the wheat was grading No. 1 hard, and only about a half to one pound of weed seeds to the bushel was found. These seeds were mostly buckwheat and lamb's quarters with hare's ear mustard and cow cockle. The elevator at Boharín was closed for the season. At Caron a new elevator belonging to Baker & Reid was erected. The power used was gasoline, and screenings were being burned. The other elevator at this point belongs to the Winnipeg Elevator Company, steam power.

At Balgonie, one elevator, that of the Dominion Elevator Company, was not running, and the other two were as reported last season. I found that the Northern Elevator Company was letting screenings go back to the farmers and was also hauling them to the nuisance ground to destroy. I examined a sample of the screenings but did not find seeds of noxious weeds.

At Qu'Appelle Station only two of the elevators clean grain before shipping it. From these, the Winnipeg Elevator Company and the Northern Elevator Company, considerable chaff and seeds were being blown, but there was no deliberate infraction of the law. Screenings were somewhat more abundant here than further west.

At Indian Head the Dominion Elevator Company was not operating its elevator; Ogilvie and Lake of the Woods were not cleaning, and that of the Canadian North-West Elevator Company, leased by J. M. and A. L. Hastings. This had a damaged dust spout which allows light screenings to escape, but I was assured that it would be repaired promptly. More care on the part of the Northern Elevator Company at this point is needed to prevent seeds being blown out.

At Sintaluta the Dominion and the Winnipeg elevators were not running; Lake of the Woods was not cleaning, and there was a badly arranged dust spout at Ogilvie's elevator. Attention was again called to this matter. At Summerberry all was clean about the two elevators, which were not open while I was there. At Grenfell, chaff and seeds were being blown out of the Winnipeg Company's elevator, and I called the attention of their representative to the matter. Ogilvie's elevator at Wolseley was not cleaning and that of the Dominion Company had a good deal of chaff about, but I did not perceive any noxious weed seeds. At Whitewood all was clean about the elevator and mill. There is a new elevator at Wapella belonging to the Lake of the Woods Milling Company, which is run by gasoline, but is not cleaning the wheat prior to shipment. The Northern also was not cleaning, and the others used screenings for fuel. Mr. Nixon's elevator was blowing out considerable chaff and seed. At Red Jacket the elevators were not open while I was there, but the premises appeared clean. None of the elevators at Moosomin called for special attention. The Winnipeg elevator at Fleming was not open this season, and the others were being run in a satisfactory manner.

While making the above inspection the weather was severely cold with heavy winds drifting the snow. It was then necessarily difficult or impossible to get evidence of foul seeds being spread about. I examined at several points screenings which were being taken away by farmers, and I found they consisted of wheat, wild buckwheat and lamb's quarters, but I failed to detect seeds of noxious weeds. There was a great variation between the proportion of screenings at one point and another. Half a pound to the bushel was the average at one; at another, I heard of a seventy-five bushel load only giving forty-five bushels of marketable wheat. This variation is partly due to the fact, that a large number of fanning mills have been sold in certain portions of the country during the past season, but to a greater extent, on the amount of crop harvested from stubble sowing. Such fields in many cases did not yield sufficient wheat to pay for harvesting, but produced weeds enough to preach, to the observing man, a powerful and eloquent sermon on the folly of slovenly farming. Wind and hail have been largely responsible for small yields, but, apart from that, properly worked summer fallow has well repaid the time and labour spent on it.

Although the weather this fall was very favourable for the germination of seeds, I have seen many advantageous opportunities for effective work overlooked. For instance, a field from which a crop had been removed was covered with a low growth of buckwheat. A stroke of the discs would have covered much of the seed, and it would then have had a good chance of sprouting before the frost, which would mean death to the young plants. If the seed had not germinated before spring, it could then be killed by the drags if cropping was intended, or the plough, if summer fallow was the programme.

There is no doubt that progress, though not altogether satisfactory, is being made in the suppression of noxious weeds in the older inspection districts, but while the attention was fixed there, the worst weeds have gained a footing in the outlying districts, where their appearance and bad character were not thoroughly known. If any one of these weeds had appeared suddenly in large numbers, people would have been alarmed and would have wished to know all about it and how to get rid of it, but as they came by degrees they were not destroyed and the farmers became used to seeing them and would hardly believe that efforts should be made to eradicate them. Prompt aggressive work is needed in Alberta and Saskatchewan to awaken the farmers to the danger of allowing the noxious weeds to spread over their lands unchecked as they are doing.

Smut is responsible for a much heavier loss to the average farmer than is often realised. Not only is the yield of the crop reduced and the value depreciated, but cattle are reported to have been injured by feeding on dirty straw, in sheaf or threshed. In the oat growing districts the attention is not so forcibly drawn to this matter as where wheat is the staple product and where the price is directly affected. In Ontario there is a fine imposed on persons sowing grain without the necessary preventative treatment for smut, and justly so, because the spores or seed from a dirty crop may be carried over many fields by the wind and distributed in other ways to the detriment of the neighbourhood.

I have during the past season collected and pressed a great number of plants, but bad weather and other duties prevented me from devoting such time to the matter as I would have liked. The following weeds well known in the eastern provinces were noticed as of recent introduction: ox eye daisy (*C. leucanthemum*), May weed (*A. cotula*), beggar ticks (*B. frondosa*), mallow (*M. rotundifolia*), perennial sow thistle (*S. arvensis*), burdock (*A. lappa*), chickweed (*S. media*) and purslane (*P. oleracea*).

By means of the railways, under construction and while carrying traffic, many weeds have been and are being brought in as instanced by the above, and I believe it well to repeat my advice to incoming settlers to be very careful to leave behind them as many of their injurious weeds and insects as possible. Although instructions to destroy weeds have been issued by the railway officials to their section foremen, and bulletins furnished by this Department, this matter does not at all points receive adequate attention. The weeds are neglected, especially where the lines run through sparsely settled districts, and will be left as a legacy to future residents at these points. Stink weed, hare's ear mustard, tumble mustard and Canada thistles are the weeds most frequently seen on the Canadian Pacific Railway Company's right of way between Moose Jaw and Calgary, where no inspection has been made except from the windows of a train.

On the graded roads throughout the country, matters are not in a satisfactory state, as too much depends on the personal interest of the local improvement overseer in the matter of weed destruction. I would

suggest that inspectors be asked to attend all the annual local improvement district meetings possible in their districts and to advise regarding necessary weed work. The owner of the land by which a road runs should, to a certain extent, be made responsible for the keeping of it clear of weeds for two very good reasons, viz., it is directly to his interest that weeds do not come on to his farm from the road, and it is in the interest of others that weeds do not get on the road from his land. Weeds are often pulled from a crop and thrown over the fence, although they may be sufficiently advanced to ripen their seed. I have also seen the rubbish from under drag harrows left on the roadways in districts where the herd law was in force and crops not fenced. In these ways weeds spread to the highways, and the public should not be put to large expense through the carelessness of a few.

The towns and cities are very much to blame for allowing many noxious weeds to flourish within their limits, to be carried on wheels or otherwise, to the surrounding country. It would not be unreasonable to ask such municipalities to compel property holders to destroy these weeds, and it would be in their interests also to destroy other weeds that are becoming a nuisance, such as the gum weed (*G. squarrosa*). This gum weed has become very prevalent in the streets of Regina, and is thought by some of the medical fraternity to be a cause of the hay fever, which affected so many during the past summer.

While in Alberta, ocular demonstrations made it apparent that extreme care would be required to prevent the irrigation ditches becoming rapidly hedged in by a rank growth of weeds of the worst kinds. In addition to the danger of seeds being carried by the water, the conditions for growth would be so favourable that these weeds would ripen enormous quantities of seed to be scattered hither and thither by the winds during the winter.

Owing to the dryness of the season and other causes there was not so great a call for expenditure in connection with the destruction of weeds on abandoned lands as during the previous year; but, nevertheless, weeds on more than one thousand acres of this class of lands were destroyed. While the practice of the Department has been to keep the noxious weeds in check by cutting, raking and burning so as to allow nature more quickly to gain ascendancy over the artificial conditions produced by cultivation, it is desirable that in special cases additional measures should be adopted as a means of checking the spread of stink weed by the trampling of cattle over the land. There are places which, in my opinion, might profitably be fenced and sown with brome grass, and then made remunerative by leasing if necessary. In such a season as the last stink weed and hare's ear mustard in Assiniboia were so stunted in growth on many places that mowing was not possible as a means of destruction, and burning by covering with straw was the method employed on small areas, but in some cases ploughing had to be resorted to for the protection of neighbouring farms.

Good work has been done on many farms in all sections of the country, and the efforts of the various inspectors were ably seconded and appreciated by all thinking and up to date farmers, who, surely, have nothing to lose and much to gain, by giving all the assistance in their power towards suppressing the weeds which constitute such a heavy tax on the fertility of the soil, and such a drain on the store of moisture so much needed for the sustenance and growth of a paying crop of wheat on the prairie farms. For the destruction of annual and biennial weeds and

the conservation of soil moisture, the early summer fallow, properly worked and followed by surface cultivation with drags or weeder while the grain is young, is undoubtedly the method suited to this country and though some of the lighter soils drift, that is no argument against the practice, but merely shows that the root fibre is exhausted and needs renewing by a few seasons under grass.

I cannot too often or too strongly protest against continuous sowing of stubble land, which means retrograde progress, or two steps backward for one forward. After a crop from a clean fallow, one stubble crop is admissible, but not more, and the sooner this is realised the better. The policy of expansion which is inseparable from the mind of the average prairie farmer is proving his downfall, and more intensive farming must be the order of the day before the balance sheet is as it should be. The area under crop should not be limited only by what can be sown during seeding time, but rather by what has been properly prepared.

There is another point to which farmers would do well to give some attention, and that is the feeding of clean oats to their horses. Wheat is sown on the cleanest land and what land is considered too dirty for this crop is often seeded to oats and used for feed without any attempt at cleaning. Many seeds pass through the horses in the manure, and are dropped in the furrows to produce more weeds. To this cause also may be attributed some of the weeds on the public roads. The teams are often fed in wagon boxes or otherwise, and the foul seeds have thus another chance to scatter abroad. I have seen feed "oats" sold that contained one-third weed seeds, and some men have claimed that it paid them better to grow weeds. So long as people are willing to buy and feed such stuff, so long will the raising of it proceed unchecked.

I will now make a few remarks on the work as carried on in the several provisional districts after glancing over the reports of the various inspectors.

Assiniboia has now been worked over for several seasons and has twenty-one inspectors who have been conscientious, painstaking workers. The districts covered by them have necessarily been large, and they have not been able to look at every farm, but, availing themselves of knowledge gained during previous seasons, they were able to make the best use of their time. Their instructions were to give their attention first to such places as were known to be infested with stink weed, so that, if possible, the ripening of the seed might be prevented. It would appear that progress is being made, as shown by the earlier ploughing for summer fallow, by the more frequent surface cultivation of the land, and by the much keener interest that is now taken in everything pertaining to the subject of noxious weed eradication; but much greater application of the best methods is necessary before it can be said that the onward roll of the "weed tide" is stayed. A district on the main line of railway, of which the inspector says, "it is comparatively free of weeds," has the following: hare's ear mustard on sixty-seven farms, stink weed on forty, wild mustard on thirteen, tumble mustard on five, shepherd's purse on three, ball mustard on two and Canada thistle on one. Undoubtedly, stink weed and hare's ear mustard are giving most trouble. The season was not favourable to the growth and spread of tumble mustard, as it started late and much of it was green at harvesting, which condition drew forth the following report from a thresher: "..... many of the crops being weedy, the grain was badly sprouted....." This commentary emphasises the value of clean land for making the most of an unfavourable season.

In Saskatchewan, where five inspectors have worked during the past season, the farmers apparently realise that the time has come when a struggle must be made against the fast encroaching weeds, and are quite ready to exert themselves when the means are pointed out and they are called on for action. Many do not yet recognise the various weeds by name, nor are they familiar with the best methods of dealing with them, but the addresses by Dr. Fletcher have helped greatly those who had the privilege of hearing him. It was reported that the mustards were pretty well spread about, and the same may be said of false flax and shepherd's purse, while stink weed was found on a number of farms by each of the inspectors. Canada thistles were seldom seen on farms, but were very prevalent along the railroad and in some scattered patches. Wild oats were not by any means uncommon.

For Alberta four inspectors were appointed and their work seemed to be much appreciated by the people. Abandoned lands were not a frequent source of trouble and little money was expended on them. Thistles needed attention especially near the towns and were very bad in the city of Calgary, where the civic authorities were persuaded to take action to the extent of having them mowed. The weed most frequently seen was ball mustard, which was often accompanied by false flax. Wild oats was reported troublesome both in the extreme south and near Edmonton. Being a wet season, sweet grass was making great progress. Stink weed was more frequently seen in the Calgary district than at other points, and hare's ear mustard showed most abundantly near Cardston. An analysis of the report from the Strathcona district shows that stink weed was found on two farms, hare's ear mustard on seven, ball mustard on thirty-two, false flax on twelve, shepherd's purse on seven, wild mustard on nine, cow cockle on eight, corn cockle on three and Canada thistle on one. Some of the places were very badly infested with one or more of these weeds, lamb's quarters or wild buckwheat. Many complaints were made of the carelessness of threshers in not cleaning their machines before moving from one farm to another.

AGRICULTURAL SOCIETIES.

The provisions of the new Agricultural Societies Ordinance, which came into effect during the latter part of the year 1899, have proved of great value to the Department in connection with the official administration of agricultural societies. The essential part of the legislation, namely, that of dealing with the distribution of the agricultural societies' appropriation, while not actually coming into effect in the year 1900, largely influenced the work of the societies, as it was known that the grants for the current year would be distributed on the basis of the performance of these institutions for the past year. The effect on the whole has been very satisfactory. There are now some forty societies in existence, several having been disorganised or amalgamated during the year.

Considerable difficulty was experienced in the Department in dealing with the returns of agricultural societies. Hitherto no proper forms have been provided and the information required under the Ordinance has, therefore, been presented in various ways. In nearly every case there was more or less unnecessary clerical work involved in the Department, and I would, therefore, strongly recommend that proper printed forms be prepared and furnished the secretaries for the purpose of making the proper statutory reports to the Department.

Another difficulty met with in the administration of this work, is the ignorance of incoming secretaries of agricultural societies in respect to their duties. Circular letters are issued by the Department from time to time, when it is evident that certain provisions of the Ordinance are generally misunderstood, properly interpreting the law and laying down the practice to be followed by secretaries. Retiring secretaries generally retain all letters and papers received by them in their official capacity, and the incoming secretaries have, therefore, nothing whatever to guide them in carrying on their work, and often initiate correspondence with the Department with a view of obtaining precisely the information which has already been embodied in circular form. Directors should insist upon the records of agricultural societies being kept in a businesslike form and handed over by retiring secretaries together with the finances and books.

I attach a statistical statement bearing on the work of the agricultural societies during the year. It may be mentioned in this connection that the best possible attempt has been made at abstracting this information from the statutory returns of agricultural societies, which in the majority of cases were more or less defective. It should be borne in mind that this statement will in no way be relied upon as a basis for the distribution of any appropriation which may be made for the current year.

The statement in question is of more than ordinary interest. Seven societies were disorganised or amalgamated with others during the year, and the total membership decreased by over one thousand. At the same time the total expenditure of these institutions increased by some twenty thousand dollars. This was chiefly due to the payment of a double grant to all societies.

Agricultural Exhibitions.—During the year thirty exhibitions were held under the auspices of agricultural societies and exhibition companies, as against thirty-four in 1899. The attached statement shows the financial transactions in connection with each. A satisfactory feature of the exhibition work is the evident desire on the part of adjoining societies to amalgamate for the purpose of holding creditable shows. The average expenditure upon each show held during the year 1899 was \$490.40, during the past year it was about \$782.00.

In the last Departmental report, I took occasion to comment upon the desirability of securing uniform judging in connection with local shows. The main object of these exhibitions, as educational institutions, is to encourage improvement in stock breeding, cultivation and other matters which go to make farming and pastoral industries a success. It is, however, a notorious fact that a large portion of the present expenditure upon shows does not bring about any tangible benefit to the agricultural community. One cause is that the show dates of neighbouring societies frequently clash, and another that prizes are given indiscriminately, particularly owing to the want of competent judges and to a defective system of judging.

Any person who has had experience in connection with the selection of judges for small local shows will affirm that it is a matter of the greatest difficulty to obtain such, particularly where the "three judge system" is followed. The result usually is that half of the judges selected disappoint the directors, and that local men have, at the last minute, to be requested to act. The obvious remedy evidently lies in the present practice which is, that the Department endeavours to induce the various exhibition managements and agricultural societies to co-operate in the dates of their shows,

and then employs one or more judges to take in each series of shows thus organised.

It might be well here to point out that wrong decisions are often not only the result of incompetent judging, but are also due to the faults of the usual method of determining the merits of exhibits. It is a well known fact that the practice of deciding on the merits of an animal by a cursory examination of outside appearances is only too general, and this again often results in prizes being awarded more to suit the prejudice and favour of the judge than by points of essential value in the exhibit. Such a state of affairs often results in exhibitors losing confidence in their standard of a good animal, particularly where one society reverses the order of merit arrived at by a neighbouring one. The only remedy is for societies to adopt a system of judging which has regard to the relative value of each point and, therefore, of the whole exhibit, and is at the same time simple, easy and expeditious. Doubtless the system of judging by points will meet these requirements. An ample check could be kept on the decisions of a single judge if a copy of the award paper were handed to the committee in charge of the class, and another, if necessary, published. Such a course apparently would have a distinct educational value, and the result of its adoption would be comparative uniformity in the judging at the various Territorial shows, a feature much to be desired.

In the estimates for the past year, a small provision was made for supplying judges to agricultural exhibitions, and I am pleased to be able to state that the Department met with unqualified success in its efforts. Nearly every society expressed its willingness to have its show take place in some sort of sequence, so that the Department would have an opportunity of taking charge of the judging in the more important live stock classes, namely, sheep, swine, horses and cattle. After very considerable correspondence, the following arrangements were made:

Prince Albert—Judge, James Bray, Longburn, Man.

Churchbridge, Logberg, Saltcoats and Yorkton—Judge, J. A. Turner, Millarville, Alta.

Calgary, Macleod, Lethbridge, Medicine Hat and Maple Creek—Judges, Messrs. James Bray, of Longburn, Man., and Joseph Jickling, of Carman, Man.

Qu'Appelle—Judge, Professor Thos. Shaw, of the Agricultural University of Minnesota, U. S. A.

Gainsborough, Carnduff, Alameda, Carlyle and Cannington Manor—Judge, Jno. S. Robson, of Manitou, Man.

Innisfail, Lacombe and Wetaskiwin—Judge, W. W. Fraser, of Emerson, Man.

Grenfell, Whitewood, Fairmede, Wapella and Wolseley—Judge, Walter Lynch, of Westbourne, Man.

Rosthern and Saskatoon—Judge, J. E. Smith, of Brandon, Man.

Some of the above shows were cancelled or postponed owing to the very unfavourable weather which prevailed nearly everywhere in the Territories at the season when the fall exhibitions were to be held, otherwise the scheme worked out in the most satisfactory manner.

In this connection it might be of interest to state that the principle of government appointed and paid judges in the live stock classes at local agricultural shows, which was adopted by this Department with such beneficial results, is now to be introduced in the Province of Ontario, with the co-operation of the Federal Department of Agriculture. The following

are extracts from *The Ottawa Valley Journal* of a recent date, bearing on the subject :

. . . The first proposal is to secure three expert judges—one for horses, one for cattle and one for swine and sheep—who will go around to all the county fairs next fall and do the judging. These judges will be the very best breeders that can be secured and will probably be brought down from Western Ontario. All their travelling and hotel expenses will be paid in addition to which they will receive \$2.50 each a day. . . .

WHY GOOD JUDGING IS NECESSARY.

Take the case of a man who knows what constitutes a good animal aside from its mere appearance and who goes to considerable expense fitting up his exhibit. When the day of the fair arrives imagine his annoyance, when he sees all his trouble and expense thrown away by an incompetent judge who perhaps does not even know what breed of animal he is judging.

HAVE NOT THE FUNDS.

A trouble in this matter of judges which confronts most boards of directors is that the boards have not sufficient funds to enable them to meet the expense of bringing in expert judges from a distance.

The objections to appointing local men to fill the positions are innumerable.

Few men, when the difference in merit is small, like to offend a neighbour, who is an exhibitor, by giving the prize to the stock of a man who lives in another township.

Local men also frequently sell stock to other local men and later, when called upon to judge an animal which they had sold themselves, they do not like to admit their own stock is inferior. Another fact is that nearly all the local men who are competent to judge are exhibitors themselves and are therefore disqualified. . . .

There is no reason why the people in this part of the country should not lead the rest of the Dominion in a good thing. . . .

MINISTER OF AGRICULTURE.

The Hon. Sydney Fisher, Minister of Agriculture for the Dominion, when seen by the *Journal*, said : One of the great weaknesses of the present fair system is undoubtedly the difficulty which is encountered in securing competent judges. Every incorrect decision which is made is a direct injury to the fair at which it takes place. . . .

Professor Robertson, Commissioner of Agriculture, Ottawa, states : The educational value of exhibitions may be realised through the object lessons and information they furnish and the stimulus they give to those who are careful observers as well as to exhibitors. The employment of trained, experienced, competent judges would add greatly to the educational results. Men who can render a reason for the decisions they give, men whose standards of excellence are founded on wide and exact knowledge are needed in place of men who make awards on merely personal preference or caprice. The love of justice needs nourishment as well as the love of fun, and the hunger for correct standards can be satisfied only when the judging is done by men and women who are alike capable and just. . . .

Mr. J. H. Grisdale, Dominion agriculturist at the Experimental Farm, Ottawa, said : The plan proposed by the *Journal*, of having a group of three judges make a circuit of the counties in Eastern Ontario is, I consider, by far the most important innovation suggested in the county fair management in recent years. Speaking from observations at a large number of small fairs during the last few years, I would say that something must be done to improve the class of judges, to insure judgments of a more uniform character by men who are able to say why they placed the animals as they did. Unless some such change is made the county or township fairs are a menace rather than an impetus to progressive agriculture. All too frequently the judging in the ring is done by men who, while they mean well enough, are quite incompetent in a number of classes. By the continued use of such men, or even by their occasional use, the ideal of breed or animal conformation and beauty it is aimed to establish, is lost or perverted. . . .

Reference was made in last year's report to a Territorial grain exhibit which was sent to the International Exhibition at Paris. In September last, the Department was advised that the Territorial Government had been awarded a gold medal for vegetable food products.

Agricultural Institute Work.—In the report of the Superintendent of Farmers' Institutes for the Province of Ontario for the year 1897, the following occurs :

The political campaign which commenced in February and ended early in March, 1898, interfered considerably with the work of the Farmers' Institutes. The public

mind became so engrossed with politics that it was deemed prudent to cancel all meetings advertised to be held after the ninth February. This caused a loss of membership and a reduction of the number of meetings held.

This Department had exactly the same experience owing to the Dominion general elections. An attempt was made to organise a series of institute meetings, but it was evident that the agricultural population were otherwise engaged, and it was, therefore, decided to postpone that part of the Department's operations until a more favourable time presented itself.

In addition to the meetings held by Professor Fletcher, which were referred to in that portion of this report dealing with the subject of "Noxious Weeds," the Department arranged the following meetings:

Fort Saskatchewan, July fourteenth; Poplar Lake on the eleventh, Clover Bar on the tenth; St. Albert on the twelfth; Qu'Appelle Station on September the eighth, and Wapella on December the eighth.

Most of these meetings were addressed by Mr. Willing, Chief Inspector of Noxious Weeds, and some by Mr. Angus Mackay, Superintendent Experimental Farm, Indian Head.

AGRICULTURAL SOCIETIES FOR 1900.

NAME	EXHIBITION STATEMENT.						FINANCIAL STATEMENT									
	No. of members	Date	Receipts	Expenditure	Prizes paid in 1900	No. of entries	Institution	On hand 1899	Federal grants	Territorial grants	Receipts from sources	Total receipts	Total expenditure	Balance	Assets	Liabilities
Alameda.....	99	Sept. 26	\$ 44 00	\$ 855.35	\$ 301 10			\$ 220 69	\$ 235 76	\$ 172 74	\$ 188 00	\$ 656 14	\$ 635 05	\$ 241 78	\$ 2 00	
Broadview.....	67	Oct. 4	373.00	565.80	479 00	17		9 74	219 18	127 74	249 65	586 87	361 12	245 49	345 49	
Battle River.....	65	Sept. 25	155 15	161 25	121 75	1		48 62	137 31	78 49	438 00	651 16	601 40	97 98	443 98	
Carrot River.....	31	Sept. 28	207.25	573.25	520 00	786		269 14	335 37	195 47	301 00	922 34	328 55	106 21	1,786 00	
Fairmeade.....	123	Sept. 22	397.25	1,030.35	685 50	89 25		125 26	211 26	123 13	104 00	438 30	403 63	56 23	56 23	
Gainsborough.....	84	Sept. 22	398.40	1,050.93				146 17	236 06	312 44	386 00	1,252 10	1,000 00	211 02	188 00	
Gravel and Wolseley.....	170							146 17	236 06	312 44	386 00	1,252 10	1,000 00	211 02	188 00	
Indian Head.....	188							146 17	236 06	312 44	386 00	1,252 10	1,000 00	211 02	188 00	
Indian Head.....	83							146 17	236 06	312 44	386 00	1,252 10	1,000 00	211 02	188 00	
Inter-Western Pacific Ex- hibition Co., Calgary.....	103	Sept. 12-15	4,844 40	6,055 04	2,324 25	397		360 95	830 76	319 11	3,841 87	5,080 74	6,055 04	2,786 02	1,398 10	480 00
Lacombe.....	107	Nov. 1	112 13	310 25	186 12	397		23 51	219 18	127 74	1,389 12	1,738 05	1,716 32	43 27	1,708 27	750 00
Lethbridge.....	107	Sept. 26-27	530.00	312 25	148 00	327		23 51	229 74	133 90	1,111 65	1,474 69	1,437 35	40 65	1,565 65	400 00
L. Cut Arm, Qu'Appelle.....	154	Sept. 26-27	530.00	312 25	148 00	327		12 01	147 88	86 19	85 85	319 42	319 30	12 13	1,565 65	400 00
Lorne.....	114	Aug. 3	902.21	208 25	644 75	246		422 52	267 91	287 91	1,013 63	1,674 36	1,432 10	212 26	400 00	
Maple Creek.....	171	Sept. 27-28	259.30	571 10	345 50	351		119 46	190 13	110 81	478 20	779 21	854 20	44 34	400 00	
Medford.....	162	Sept. 26	94.45	1,227.51	1,087 25	315		40 81	254 16	238 62	1,006 63	2,270 73	2,270 19	54	400 00	
Medicine Hat.....	177	Sept. 25-26	318 60	629.85	484 50	394		40 81	254 16	238 62	1,006 63	2,270 73	2,270 19	54	400 00	
Moose Jaw.....	52	Aug. 7-8	470.46	596 37	470 25	328		80 22	406 67	107 73	575 00	1,010 20	771 70	236 52	278 50	
Moosomin.....	124	Oct. 1	183.80	596 37	470 25	328		80 22	406 67	107 73	575 00	1,010 20	771 70	236 52	278 50	
Moose Mountain, East.....	68	Oct. 1	183.80	596 37	470 25	328		80 22	406 67	107 73	575 00	1,010 20	771 70	236 52	278 50	
Moose Mountain, West.....	110	Sept. 28	429.63	398 25	317			96 13	501 75	259 03	780 85	1,014 58	657 89	35 38	472 00	
North East Assinibola.....	52	Sept. 26	172.83	162 11	162 11	335		214 00	311 60	181 61	289 00	782 21	516 26	274 87	472 00	
Olds.....	85	Sept. 25	219 50	28 101	219 50	382		23 00	213 89	93 88	95 00	349 96	89 90	293 99	15 00	
Pincher Creek.....	138	Sept. 28	458 97	757 10	303 70	382		191 00	454 21	246 36	127 80	684 86	650 50	47 61	389 03	
Pincher Forks.....	110	Aug. 2-3	1,136 50	2,118.97	1,136 50	746		15 64	296 71	155 45	212 70	824 37	831 27	31 09	472 00	
Qu'Appelle.....	212	Aug. 3-9	921 00	2,233 29	937 25	746		46 21	339 11	209 82	1,373 00	2,428 09	2,451 29	15 69	365 82	
Regina.....	91							46 21	339 11	209 82	1,373 00	2,428 09	2,451 29	15 69	365 82	
Rosthern and Hague.....	126	Oct. 25	352 00	478.53	324 55	316		125 68	155 80	90 80	76 00	183 53	152 44	109 06	100 06	
Rothbury and Logburg.....	51	Oct. 2		125.55	108 80	227		102 07	139 96	81 37	33 00	186 00	171 38	31 09	40 00	
Sheep Creek.....	53	Oct. 2		292.23	229 00	38		75 20	280 48	169 30	122 15	582 53	329 26	36 15	53 85	
Saskatchewan, South.....	55	Sept. 27-28						123 84	327 45	190 85	146 50	101 78	338 27	255 92	34 82	
Saskatchewan, Fort.....	131	Sept. 24						49	375 37	215 47	384 67	912 95	623 25	340 06	635 03	
Saskatchewan, Central.....	120	Sept. 24						49	375 37	215 47	384 67	912 95	623 25	340 06	635 03	
South Qu'Appelle.....	142	Oct. 1-2	695 66	1,006.10	569 45	846		394 11	398 96	195 47	150 00	886 01	1,074 95	400 00	165 73	
South East Assinibola.....	157	Oct. 2	178.50	341 64	323 25	50		394 11	398 96	195 47	150 00	886 01	1,074 95	400 00	165 73	
Stirling (Satecats).....	140	Oct. 2	13 50	197 00	197 00	237		291 20	394 42	212 58	102 50	845 22	740 75	385 77	1,359 39	
Wapella.....	65	Sept. 26	469.80	553.85	421 25	391		34 76	368 75	232 58	102 50	845 22	740 75	385 77	1,359 39	
Waskia.....	97	Oct. 4	117 27	392 40	328 00	391		42 19	277 27	161 60	231 68	673 55	227 01	501 10	17 88	
Whitewood.....	4,216		\$14,365 27	\$23,466 52	\$14,338 58			\$3,801 72	\$13,122 70	\$7,298 33	\$19,624 29	\$30,953 32	\$36,694 02	\$7,917 35		

*Amalgamated with White-wood.

*Amalgamated with Qu'Appelle and South Qu'Appelle.

*Amalgamated with Indian Head and Qu'Appelle.

* Amalgamated with White-wood. † Amalgamated with Qu'Appelle and South Qu'Appelle. ‡ Amalgamated with Indian Head and Qu'Appelle.

DAIRY INDUSTRY.

The number of government creameries operated during the year was nineteen. Twenty-one were in operation during 1899, twenty during 1898 and sixteen during 1897. The Cardston, Indian Head and Wolseley creameries were closed, and a new dairy station opened at Olds.

The attached statement of the work of government dairy stations in the Territories for the year, shows a healthy increase in volume of business over previous years. The number of pounds of butter manufactured in 1898 exceeds the output of 1899 by about 11,000 lbs.; 1889 showed an increase of about 17,000 lbs. over 1898, while the past year shows an increase of 135,000 lbs. over the preceding year.

An interesting feature of the creamery work, is the diminished quantity of milk which was supplied and the increase in the quantity of cream. Cream separator agents have been very active throughout the Territories during the past year or two, and evidently their labours have not been in vain, as the reduced quantity of milk supplied is, of course, directly due to the introduction of hand separators in the various dairy farms tributary to the creameries.

Contrary to expectations, the volume of business in connection with most of the Assiniboia creameries showed an increase. This, however, was doubtless due to the unfavourable crop conditions which prevailed in that district. As stated in last year's report, it is unlikely that a profitable dairy industry can be built up in the easterly portion of the Territories until the farmers there find it in their interests to diversify their agricultural operations.

I have called attention in previous reports to the lack of interest displayed in connection with the building up of dairy herds. I know of only one purebred dairy sire having been brought into the Territories during the year. By some, this would not be considered an unmixed evil, but if dairying is ever to attain that position of importance, which experience in other countries has shown that it deserves, it is hard to see how this result is to be brought about until creamery patrons breed with a definite object in view.

Through the courtesy of Professor Robertson, Commissioner of Agriculture, Ottawa, I submit a statement showing a summary of the business of the Dominion experimental creamery stations for the seasons 1898, 1899 and 1900.

Summary of the Business for Season of 1900 at the Dominion Experimental Stations in the North-West Territories.

NAME OF STATION	No. of patrons	Inches of cream supplied	Pounds of milk supplied	Lbs. of butter manufactured	Average price realised at creamery	M't'g. charge per pound	No. of days in operation	Gross value of product
					Cts.	Cts.		
Calgary	1898 59	15,627	125,186	19,389	20.25	4	168	\$ 3,926.70
	1899 43	24,806.7	.....	24,677	21.56	4	174	5,319.47
	1900 65	31,624.2	.....	34,099	.....	4	178	.....
Churchbridge	1898 70	21,429	.....	22,223	18.85	4	111	4,189.21
	1899 84	29,739.6	.....	31,674	20.19	4	167	6,396.77
	1900 127	61,909.7	.....	65,325	.....	4	188	.....
Edmonton ...	1898 48	12,346	115,036	17,068	18.80	4	156	3,209.19
	1899 49	14,149.9	70,144	17,322	20.96	4	160	3,631.56
	1900 51	18,693.7	.....	17,089	.....	4	168	.....
Grenfell	1898 77	35,179	.....	42,838	19.04	4	149	8,156.47
	1899 71	32,204.4	.....	39,154	20.28	4	152	7,943.02
	1900 83	42,031.9	.....	49,817	.....	4	173	.....
Innisfail	1898 105	39,003	437,405	57,717	20.40	4	184	11,775.55
	1899 156	68,924.8	349,682	86,040	20.69	4	184	17,805.53
	1900 120	84,429.2	.....	89,402	.....	4	184	.....
Maple Creek ..	1898 15	11,621	.....	12,362	20.06	4	158	2,479.99
	1899 12	7,233.8	.....	7,921	21.41	4	128	1,696.56
	1900 15	8,265.8	.....	8,806	.....	4	151	.....
Moose Jaw ...	1898 39	31,580	.....	37,999	20.00	4	179	7,603.53
	1899 34	27,974.7	.....	34,915	20.48	4	191	7,152.62
	1900 31	24,826.9	.....	32,285	.....	4	195	.....
Moosomin	1898 47	14,567	.....	14,523	18.55	4	134	2,695.28
	1899 40	7,725.6	.....	8,461	20.67	4	118	1,748.34
	1900 67	22,836.5	.....	24,296	.....	4	152	.....
Olds	1898 ..	.....	.....	.....	.....	4	.....	.....
	1899 ..	.....	.....	.....	.....	4	.....	.....
	1900 31	11,597.6	.....	11,007	.....	4	93	.....
Prince Albert	1898 31	10,717	7,237	12,644	18.51	4	143	2,340.64
	1899 22	10,366.5	.....	13,758	20.44	4	136	2,812.54
	1900 38	14,146.9	.....	18,792	.....	4	139	.....
Qu'Appelle ...	1898 66	26,713	.....	26,188	18.70	4	150	4,898.22
	1899 45	17,158.1	.....	16,561	20.22	4	148	3,348.45
	1900 57	23,974.7	.....	24,647	.....	4	190	.....
Red Deer	1898 76	28,253	217,572	42,878	19.84	4	184	8,507.54
	1899 110	46,676	157,306	62,142	20.87	4	184	12,968.23
	1900 92	49,475	.....	63,887	.....	4	182	.....
Regina	1898 49	24,301	.....	25,450	19.05	4	157	4,849.26
	1899 47	21,181.9	.....	23,051	20.04	4	160	4,615.23
	1900 49	24,267.8	.....	24,645	.....	4	182	.....
Saltcoats	1898 76	21,343	.....	18,779	18.15	4	139	3,409.85
	1899 45	13,898.3	.....	13,190	20.07	4	139	2,647.58
	1900 53	19,771.5	.....	18,650	.....	4	156	.....
Saskatoon	1898 18	8,631	16,581	10,202	18.92	4	153	1,930.49
	1899 13	7,929.1	14,406	9,197	20.49	4	146	1,884.46
	1900 10	9,411.5	.....	10,398	.....	4	161	.....
Tindastall	1898 ..	.....	.....	.....	.....	4	.....	.....
	1899 66	6,350.2	162,406	14,655	21.78	4	112	3,192.51
	1900 75	37,374.1	.....	45,770	.....	4	184	.....
Wetaskiwin ...	1898 58	8,576	456,914	27,136	20.08	4	192	5,449.65
	1899 71	14,815.4	403,581	32,350	20.99	4	184	6,789.29
	1900 66	16,384.1	36,413	33,770	.....	4	184	.....
Whitewood ...	1898 85	41,271	.....	44,308	19.07	4	166	8,450.52
	1899 89	36,276.5	.....	42,284	20.07	4	175	8,485.70
	1900 68	32,892.4	.....	37,038	.....	4	183	.....
Yorkton	1898 91	38,961	.....	35,413	18.26	4	137	6,466.61
	1899 50	18,680	.....	17,491	20.21	4	143	3,535.19
	1900 61	27,075.5	.....	27,329	.....	4	165	.....
The Territories	1898 1051	396,606	1,657,542	484,948	19.22	4	2,934	93,740.67
	1899 1072	407,095.8	1,303,221	501,907	20.70	4	3,035	103,492.32
	1900 1169	560,989	46,211	637,052	.....	4	3,208	.....

CATTLE.

Owing to the scheduling of cattle from the Argentine Republic, on account of an outbreak of foot and mouth disease in a shipment from that country bound to a British port, the demand in the British market for Canadian cattle showed an upward tendency. This favourable condition, however, was largely neutralised by the phenomenal advances in the ocean freights, doubtless owing to the transportation requirements in connection with the campaign in South Africa. Freights on cattle averaged \$13 per head as compared with \$8 last year, and, to add to the difficulties, hay advanced \$2 per ton.

Export cattle from the Calgary district brought $3\frac{1}{2}$ cents per lb. live weight, averaging somewhere about \$50 per head. In the Lethbridge district the same class of cattle brought about the same price. From \$40 to \$42 per head was paid for light cattle. Exporters from the Medicine Hat and Lethbridge districts averaged about \$45 per head, being largely threes and fours. The prices paid for Prince Albert, Battleford, Yorkton, Touchwood Hills, Moosomin, Dundurn and Regina cattle ranged from \$40 to \$45 for three to four year old steers, the majority bringing \$45. Export dealers were prepared to pay for choice heifers and steers, weighed off cars at Winnipeg and tipping the scales at 1,200 lbs., \$3.75 per cwt., purchasers assuming freight. As a general rule, our stockmen obtained \$50 per head for four year olds and \$45 for three year olds.

England imported last year \$200,000,000 worth of meat, of which the United States furnished 65 per cent., but the time is apparently approaching when the States, our most formidable competitor in the British market, will cease to command the important position they at present occupy. It is said that there are 20,000,000 more beef eaters in the United States today than there were twenty years ago, and the per capita consumption is rapidly increasing; again, the number of cattle in the United States has been reduced by 11,000,000 during the past twenty years, while, in response to the demand for early maturity, cattle are being marketed at least one year younger than formerly. It may also be mentioned that the grazing areas of the western States are rapidly becoming exhausted, in fact, in the opinion of many, the days of open ranging of stock are numbered. The dry season of last year taxed the northern portion of Montana severely, thus emphasising the difficulties of the situation. The Department of Agriculture of Washington has been very active in the way of obtaining forage plants and grasses with which to replenish the western grazing ranges. Grasses have been imported from South Africa and other semi arid countries to accomplish this end, but the Department has met with very severe opposition on the part of stock owners in the western States who desire to retain their grasp on the public domain as long as possible and are suspicious of any attempt to improve the country. An indication of the crowded condition of the United States grazing ranges, is the large immigration of Montana stockmen into the ranching districts of the Territories.

An interesting feature of the cattle business of the Territories is the movement from Ontario, Manitoba and the farming districts of the Territories to Southern Alberta and Western Assiniboia. The importation from Ontario amounted to 11,434, from Manitoba 24,896, from Saskatchewan 738, from Eastern Assiniboia 4,996 and from Northern Alberta 222, making the total influx of cattle into the ranching districts of the Territories

of 42,286. The total export of cattle from the whole of the North-West Territories for 1899 was 41,471, while during the past year 55,129 head were exported, showing an increase of 13,658 in favour of the latter. The shipment of stockers from Ontario and Manitoba into the Territories, amounting to over 36,000 head, is significant, indicating an enormous increase in the export business a few years hence when these animals have reached maturity. The values of stockers at various points in the Territories during the past year were as follows:

	<i>Yearlings.</i>	<i>Two Year Olds.</i>
Medicine Hat.....	\$16 to \$18.....	\$23 to \$25.
Calgary.....	18 to 20.....	25 to 27.50.
High River.....	18 to 18.50.....	28.
Millarville.....	19 to 21.....	25 to 27.
New Oxley.....	17.....	25.
Maple Creek.....	17 to 19.....	22 to 24.

It is worthy of consideration whether the stocker business between the Province of Ontario and the Territories could not be further developed. The following table shows exports of stocker cattle from Canada to the United States for the past decade:

<i>Year.</i>	<i>Number.</i>	<i>Value.</i>
1888.	40,047	\$ 648,178
1889.	37,360	488,266
1890.	7,840	104,623 (United States passed McKinley Act, June 30, 1890.)
1891.	2,763	26,975
1892.	551	21,327 (Great Britain scheduled our cattle, Nov. 21, 1892.)
1893.	402	11,032 (United States quarantine against Canadian cattle, Feb. 3, 1893.)
1897.		(United States quarantine against Canadian cattle abolished, Feb. 1, 1897.)
1898.	87,905	1,239,448
1899.	92,834	1,298,170 (This valuation is at least \$100,000 too low.)

X In the past, United States buyers have been prepared to pay a higher price for yearling stock than Territorial buyers could afford to pay. As high as \$22.50 was offered by United States buyers in Ontario during last year, and \$17 was frequently paid in the Province of Manitoba for rather inferior stock. It is peculiar that no cattle less than full yearlings have yet been purchased. Good weaned calves by beef sires, from six to seven months old, can be bought in Manitoba and Ontario at from \$10 to \$13 per head during the fall and it would appear that a profitable business could be developed in importing that class of stockers. The railway journey would probably be trying and there might be some loss in transit, but with careful management I do not think any considerable loss would ensue. Calves could be more economically wintered in the west than in eastern Canada, and the cost of transportation would be little more than one-half of shipping yearling to two year old stock.

The following reports, gathered from information received from a large number of prominent stockmen in the various portions of the Territories, are of interest:

North-Eastern Assiniboia.—As the winter of 1899-1900 was mild and an unusually large quantity of hay was on hand, cattle came through in good order and the loss was under 2 per cent. The natural increase was reported to be between 30 per cent. and 90 per cent. of the breeding stock. Rather less than the usual quantity of hay was made during the past year and it was of rather inferior quality on account of wet weather; it was, however, considered that with straw and oat sheaves there would be sufficient feed. Little or no dependence is placed on winter grazing in this district, cattle being shedded or stabled and fed. Pasture was considered good until the winter set in, and stock were in better condition than usual. A few cases of symptomatic anthrax were reported, and a few head of cattle suffering from actinomycosis were destroyed. Abortion was said to have been to a limited extent prevalent about the File Hills and was thought by some to be due to the drinking of alkaline water. A number of purebred bulls were brought into the Saltcoats district and the quality of beef stock is improving each year. At the same time, the interest has materially increased in dairying since the creameries came under the control of the Government. The past was a very prosperous year for branches of the cattle industry.

Dundurn.—The winter loss was only from 1 to 2 per cent., which was about the same as that of the preceding season. The calf crop averaged 60 per cent. of the breeding stock. Not more than two-thirds of the usual quantity of hay was put up and it was of rather inferior quality. No diseases were prevalent amongst the herds and cattle went into winter quarters in fairly good condition. Owing to the excessive rains during the autumn, the grass was somewhat greener late in the season than was desirable.

East Moose Mountain.—This is largely a mixed farming district in which a good many stockers are fed. The winter loss was nominal and the increase was about 75 per cent. of the total number of cows. A very small quantity of hay was secured and the quality was deficient owing to the unfavourable weather, but cattle entered the winter in good condition. Complaints are again made of cattle disappearing from the range every year.

Wood Mountain.—On this range the winter loss was lighter than in 1898-99 and averaged about 3 per cent., mostly due to natural causes. The increase was stated to have ranged from 50 per cent. to 70 per cent. of the breeding stock. The latter figures are the same as those of last year. A considerable number of calves were killed by coyotes and wolves were said to have caused the death of twenty head of grown cattle near Willow Bunch. Young stock brought from Manitoba suffered somewhat from symptomatic anthrax, but inoculation was said to have proved an efficient preventative. The general health of cattle was good and, as they entered the winter in fine condition, with the grass well cured on the prairie, it is probable, that, with the help of an average hay crop of good quality, they will come through all right.

Maple Creek.—Winter losses on this range due to severe weather were few, but from actinomycosis and other causes would average about 3 per cent., which is 2 per cent. less than in the previous winter. The heavy snow storm in May was hard on young cows, and the losses were considerable. The calf crop, however, averaged about 70 per cent., which is higher by 10 per cent. than in 1899. The early part of the haying season was so extremely windy that work was very much interfered with

and owing to the wet weather later, hay was not saved in as good condition as desirable and rather less than the average quantity was put up. Very few ranchers considered that the grass cured satisfactorily on the range and large areas were burned over, but, notwithstanding this, cattle were in good condition in December. The general health of cattle was fair throughout the season, although there was still a percentage of mangey animals to be seen and a few deaths from symptomatic anthrax occurred. Wolves in this district still prove a very serious pest and cause heavy losses. The prices paid for beef cattle were slightly higher than during the previous season.

Medicine Hat.—There were practically no losses due to bad weather and the casualties from other causes would not exceed 3 per cent., which would be somewhat less than the average of previous years. The spring was a very favourable one and 75 per cent. of the cows produced calves. This rate of increase is about the same as in 1899 and compares well with other districts. Considerably more than the usual quantity of hay was put up, but a good deal of it was more or less damaged by wet weather in August. In the northerly portions of this district the grass was thought to have cured fairly well, but in the southerly parts it was somewhat green in the beginning of the winter owing to late rains. Beef cattle were mostly sold by weight. This method of buying and selling is considered to be a benefit to the producer and from this and other causes the prices realised were in many cases from one to five dollars better than formerly. At several points, notably Josephburg and Many Berries Creek, the wolves were exceedingly troublesome and are thought to be increasing in numbers. They are considered more destructive than bad winters. A few cases of actinomycosis and also of symptomatic anthrax were reported, and complaints were made of losses on the railway. Mange again showed itself and was treated promptly by the ranchers. The general health of cattle was excellent and the year a most prosperous one.

Macleod and Lethbridge.—The general opinion of ranchers in this district is that owing to a good winter and early spring the losses were smaller than they have been for several years and did not exceed 4 per cent. On portions of this range wolves have been somewhat troublesome, in fact, there were no other losses to speak of. The natural increase was 12 per cent. to 15 per cent. better than that of 1899, and probably sixty-seven cows in the hundred had calves. As usual, the percentage has been greater in small herds than in large. A shortage of bulls has been very noticeable. Slightly more than the usual amount of hay was made, some of which was damaged a little by the wet fall. Stock never looked better than they did in the beginning of the past winter and were holding their flesh well. The majority of correspondents consider that the grass on the range cured fairly well. The prices secured for beef cattle were mostly from one to five dollars higher than during the year before. The health of cattle was extremely good, but a few cases of symptomatic anthrax and actinomycosis were noted; mange, however, seems to be disappearing from this range. The consensus of opinion seems to be, that the past season was one of the best in the history of the district.

Pincher Creek.—Here, as in most of the other districts, the winter loss was extremely light and would probably only average 3 per cent. The range system is rapidly being superseded by barnyard feeding and those keeping up cattle lose very few, but owing to water and shelter gradually being fenced, the losses on the ranges are much heavier. The

early spring ensured favourable calving, the average increase being about 75 per cent., a slight improvement on the previous season, but it was much lower than it would have been if there had been more bulls with large bunches. Coyotes are reported to have killed a large number of calves. More hay than usual, of excellent quality, was put up, but complaints were made of prairie hay being shipped out, while all the grass was needed in the district. The range, although it could not be said to have cured well in all parts, furnished good feed for the cattle and they entered the winter in fine condition. Although prices ruled low in the early part of the season, they improved later on and the turn off was on the whole good. The losses from wolves are becoming less frequent, but two of these animals were reported at the Waterton Lakes. Cattle were, generally speaking, in good health and mange appears to have been fairly well stamped out and there was no occasion for using the mange chute. Barbed wire fences, out of repair, injured many cattle, and the casualties were also numerous on side hills.

Porcupine Hills.—Winter losses average about per cent. and the season was slightly more favourable than those preceding it. The natural increase was also somewhat better, although still very low in large bunches on the range, where it did not average more than 45 per cent. of the breeding stock, but the rate in smaller bunches was stated to be from 70 to 85 per cent. Wolves were few, but coyotes were quite numerous and 5 per cent. of calves are supposed to have fallen victims to them. More than the average quantity of hay was made, a considerable amount of which was from cultivated grasses and the quality was uniformly good. Wind proved a greater drawback to haying operations than rain. Cattle entered the winter in good order and held their flesh well, although the grass was beaten down by storms and was said by many to be frozen. The general health of cattle was good, but a few cases of actinomycosis and symptomatic anthrax occurred. Mange seems to be disappearing. A dipping tank was built during the past season, but there was no occasion to use it. The prices paid for beef were slightly better than during the previous year.

Hugh and Sheep Rivers.—Owing to the mildness of the winter, the loss in cattle was light; the average would not be over 5 per cent., but somewhat heavier in dogies. The rate of increase was about 65 per cent. of the breeding stock on the range belonging to the large concerns. It would run considerably higher amongst shedded cattle. There was said to be considerable loss of calves due to the depredations of coyotes, but wolves were scarce. More than the average quantity of hay was secured and the quality was excellent. From the fact that the cattle were in fine condition on the ranges in the early part of the winter, it might be inferred that the grass contained considerable nourishment notwithstanding the storms and frosts which badly bleached it. There was an increase in value of about \$2.50 per head on steers and spays over the preceding year. The general health of cattle was fairly good. There was a little mange, which, however, seems to be dying out owing to the careful watching, and some cases of symptomatic anthrax, for which vaccine has by some been used as a preventative with satisfactory results. Cases of actinomycosis were very few. On the whole, the stock business was considered to be in a very prosperous condition during the past year.

Bow River and Red Deer East.—The winter loss in cattle was quite nominal, being only 1 to 2 per cent. Although the increase was

about 70 per cent. of the cow herd, it was not considered up to the usual mark, principally owing to the wet season and the high condition of the cows during the preceding summer. There was an abundance of good hay put up, but the cattle did not go into winter quarters very fat, owing to the ten days storm which started on November 15. Some are of the opinion that the range did not cure well and that cattle will be thin in spring. The loss from wolves has been heavy and on the Red Deer ranges, north of Gleichen, was said to represent 5 per cent. of all calves branded. There was a little mange, but the general health of cattle was good and prices were slightly better than usual.

Calgary and Bow River West.—The winter of 1899-1900 was a very favourable one and the loss would not average more than 3 per cent. on range bred cattle, but would be slightly heavier on stockers from the east, the importation of which is assuming greater proportions every year. The calf crop was about 67 per cent. of the breeding stock and varied according to the care taken and the size of the bunch. The general opinion is that more hay was put up and that it was of a better quality than usual, but opinions differ amongst correspondents on that point, many of them complaining of poor quality. After the storms in the early fall, which were very hard on fresh importations, cattle picked up quickly in November and December and were at that time fat and in much better condition than usual. There is no doubt that the range in portions of the district cured better than in others. The demand for cattle and prices in the early part of the season were more favourable than during the previous one. Later the demand was only for very heavy cattle. As usual coyotes were destructive to early calves and flies proved somewhat troublesome through the summer. Mange was not nearly so bad as during the previous year, but owing to the continued wet weather there was still a certain amount of hoof rot. While cases of actinomycosis are still seen, they are infrequent and the loss from symptomatic anthrax was also light.

Northern Alberta.—In this district, the northern part of which is entirely devoted to mixed farming, the loss was less than 3 per cent. during the winter, which was a very favourable one with light snowfall. The natural increase was over 75 per cent. in the north, but where ranching conditions prevail it was only about 60 per cent. on the breeding stock. This low rate was generally accounted for as being the result of a scarcity of bulls. On the whole, the quality of hay secured was very poor; much of it contained willow brush. The sloughs, being full of water at haying time, could not be cut and the excessive rains interfered seriously with haying operations. Owing to the wet fall the grass was more or less wet when beaten down by snow and could not be said to have cured, although cattle kept in good flesh well into the winter. It is probable that the effects of the frost will be most noticeable when spring opens. The prices offered for beef cattle were about the same as those of the previous year. Losses during the summer were few and were attributed to either larkspur or to symptomatic anthrax. The general health of cattle was good, but the annoyance caused by flies tended to keep them thin. One bunch was reported to have been affected by some disease of the nature of ophthalmia. It has been stated, that large numbers of stockers of inferior grade have been brought in and that this will ultimately have a detrimental effect on the market.

IMPROVEMENT OF CATTLE.

Importation of Purebred Bulls.—The basis upon which the Department during the past year extended encouragement towards the importation of purebred bulls into the Territories from the Provinces of Manitoba and Ontario, was the same as that outlined in the reports of 1898 and 1899. The Canadian Pacific Railway Company granted free transportation up to eight car loads and the sum of \$5.00 was paid to the Department by every applicant for the transportation of a bull, in consideration of which the Department undertook to take delivery of the animal at any railway point in the Provinces referred to and to deliver it at any railway point within the Territories. This privilege was confined to actual owners of cattle residing in the Territories, and no more than two bulls were brought up for any one individual under this arrangement.

Eighteen bulls were imported from the Province of Manitoba and forty-seven from Ontario, making a total of sixty-five, as compared to forty-eight imported under the same arrangement during the previous year. The total cost per head of the Ontario shipment, including local freight charges, feed, attendance en route and incidental expenses, was \$9.30 per head, and for the Manitoba shipment \$4.10 per head. The total expenditure for the whole shipment was \$511.46 and the revenue \$325.00, involving an expenditure of public funds of \$186.46, being a little less than \$3.00 per head. Considering that the animals were gathered from thirty-one different railway points in Manitoba and Ontario and distributed to thirty-two stations in the Territories, involving heavy shunting charges and frequent local shipments, at the expense of the Department, this is apparently as economical management as could be expected under the circumstances.

Twenty-four bulls were shipped into Assiniboia, thirty-nine into Alberta and two into Saskatchewan. Last season twenty were consigned to points in Assiniboia, twenty-five to Alberta and three to Saskatchewan. It will be noticed that the total importation of bulls under this arrangement into Saskatchewan for the two years during which it has been in operation, only amounts to five, out of a total importation into the Territories of 113. In this connection it may also be mentioned that a whole car load of good serviceable home bred bulls was allowed to leave Saskatchewan, consigned to a public sale held at Calgary recently under the auspices of The Purebred Cattle Breeders' Association, the owners claiming that there was no local demand. I am personally aware that a very small number of purebred bulls have been brought into Saskatchewan by private enterprise of late years. It would appear that considerable educational work could with advantage be done in that district by agricultural societies in order to induce stockmen to discard the grade bull in favour of the purebred.

Although the number of bulls brought in under the auspices of this Department during the past season shows a material increase over the importations for the year 1899, I do not think that this branch of the Department's work is likely to develop to any material extent, nor would I consider it at all desirable that it should. When this work was first taken in hand a necessity for Government assistance existed. While, even at that time, a very considerable number of purebred bulls were brought into the Territories, they were chiefly consigned to important stock centres such as Calgary, High River, Lethbridge, Macleod, Yorkton and other points in the ranching districts. During the last couple of years, this state of affairs

has largely undergone a change, as there is now hardly a town or village of any importance throughout the whole of the Territories where purebred bulls are not being offered for sale by local importers. Another departure which will in the future greatly facilitate the exchange of purebred bulls and enable the smaller stockmen to purchase suitable animals, is the public auction sales of purebred stock which have now been inaugurated by The Purebred Cattle Breeders' Association and to which local breeders can consign their surplus animals. There can be no reasonable doubt that the efforts of the Department to place Territorial stockmen in a position to purchase animals in the eastern Provinces and land them in the Territories at a uniform rate of \$5.00 per head, has been productive of much good and was instrumental in stimulating private enterprise to meet existing requirements. It is confidently hoped that in the course of a few years, the necessity for Government action, which existed when the scheme was first formulated, will be effectually removed, when the field may with safety be left to the efforts of private individuals.

Local Production of Purebred Cattle.—This subject is very fully dealt with in the report of the Secretary of The Territorial Purebred Cattle Breeders' Association, which appears elsewhere.

Importation of Bulls from Manitoba, 1900.

BREED	SHIPPING POINT	DESTINATION
Two Galloways.....	Morris.....	Maple Creek
One Galloway.....	Qu'Appelle.....	Edmonton
One Shorthorn.....	Winkler.....	Swift Current
One Shorthorn.....	Killarney.....	Swift Current
One Shorthorn.....	Manitou.....	Stair
One Shorthorn.....	Clearwater.....	Morley
One Shorthorn.....	Clearwater.....	Red Deer
One Shorthorn.....	Virden.....	Red Deer
One Shorthorn.....	Clearwater.....	Wapella
One Shorthorn.....	Souris.....	Duck Lake
One Shorthorn.....	Carberry.....	Prince Albert
One Shorthorn.....	Westbourne.....	Medicine Hat
One Shorthorn.....	Clearwater.....	Wetaskiwin
One Shorthorn.....	Brandon.....	Pincher Creek
One Hereford.....	Hartney.....	Dundurn
One Hereford.....	Souris.....	Olds
One Polled Angus.....	Griswold.....	Rush Lake

Importation of Bulls from Ontario, 1900.

BREED	SHIPPING POINT	DESTINATION
Four Galloway	Guelph	Rush Lake
One Galloway	Guelph	Lathom
One Galloway	Guelph	Lethbridge
One Galloway	Kinburn	Lumsden
One Ayrshire	Apple Hill	Broadview
One Hereford	Compton	Pense
One Hereford	Guelph	Qu'Appelle
Six Hereford	St. Marys	High River
One Hereford	Compton	Olds
Fourteen Shorthorn	Guelph	High River
Two Shorthorn	Aurora	Wetaskiwin
One Shorthorn	St. Thomas	Walsh
One Shorthorn	Myrtle	Moosomin
One Shorthorn	Rockland	Lumsden
One Shorthorn	Port Elgin	Red Deer
One Shorthorn	Thamesville	Edmonton
One Shorthorn	Exeter (G. T. R.)	Wetaskiwin
One Shorthorn	Guelph	Lacombe
One Shorthorn	Strathroy	Wetaskiwin
One Shorthorn	Brown Hill	Yorkton
Two Shorthorn	Pakenham	MacLeod
Two Shorthorn	Barrie	Weyburn
One Dexter Kerry	Montreal	Dundurn

STOCK INSPECTION.

I am pleased to be able to state that with one or two exceptions, stock inspectors all through the Territories did excellent work during the past year. Very few complaints were received of stock leaving without the necessary inspection. It is, however, but fair to state that this favourable result was largely due to the action of the Canadian Pacific Railway Company instructing its agents at the various shipping points in the Territories, not to accept stock for shipment until the consignor was in a position to produce a certificate of inspection signed by a duly appointed stock inspector.

The largest number of inspections was made at Medicine Hat, and the largest number of export cattle was inspected at Yorkton. The following is a statement showing the details of the inspection work for the year:

Stock Shipments 1899 and 1900.—Comparative Statement.

DISTRICTS,	EXPORTS				LOCAL SHIPMENTS			—	
	East		West		Cattle		—	TOTAL	
	Cattle	Horses	Cattle	Horses	Stock'rs to Ranges	Others	Horses	Cattle	Horses
East Assiniboia...	1899 7,973	26	10	1				9,142	27
	1900 13,871	10	47	.....	4,080	178	433	18,176	443
West Assiniboia...	1899 10,929	453	170	10				13,677	636
	1900 10,942	127	172	6	916	6,196	241	18,226	374
North Alberta...	1899 568	.....	55	.....				1,239	.....
	1900 492	8	921	.....	222	3,221	.....	4,856	8
South Alberta...	1899 13,095	1,251	5,906	202				21,748	2,608
	1900 18,549	1,865	5,875	131		3,124	1,162	27,548	3,158
Saskatchewan...	1899 2,765	.....	.....	.....				2,881	.....
	1900 4,260	.....	.....	.....	735	304	.....	5,302	.....
The Territories...	1899 35,330	1,730	6,141	213				48,687	3,271
	1900 48,114	2,010	7,015	137	5,956	13,023	1,836	74,108	3,983

Stock Shipments.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		—
		Cattle	Horses	Cattle	Horses	Stockers to ranges	Others	Horses
Weyburn.....	W. H. Hunt.....	107				38	60	.....
Langenburg.....	C. M. Langer.....	146						.....
Indian Head.....	D. McLean.....	42						.....
Balgone.....	J. R. Agar.....					179	5	.....
Alameda.....	A. R. Hooper.....	501						.....
Wapella.....	G. H. Morrison.....							.....
Wolseley.....	G. H. Hurlburt.....					775	30	.....
Fleming.....	L. Galbraith.....	102				178		13
Broadview.....	J. Brannan.....	35				152	1	1
Grenfell.....	J. S. Dickson.....	229		13		823	13	.....
Saltcoats.....	B. Smithette.....	724						.....
Gainsborough.....	Ben. Burk.....							.....
Oxbow.....	H. Paine.....	263						119
Qu'Appelle Station.....	J. A. Lidgate.....	1,799				325		.....
Churchbridge.....	B. D. Westman.....	344					18	.....
Yorkton.....	T. V. Simpson.....	5,769						.....
Whitewood.....	W. Gemmell.....	1,866				419	5	300
Estevan.....	John Ellis.....	16						.....
Red Jacket.....	B. Anderson.....							.....
Moosomin.....	R. Stewart.....	1,928	10	34		1,191	46	.....
EAST ASSINIBOIA.....		13,871	10	47		4,080	178	433
Moose Jaw.....	Jas. Thompson.....	276						.....
Regina.....	S. F. Callender.....	951				298	15	.....
Swift Current, Rush and Gull Lakes.....	W. Milburn.....	1,071					780	.....
Maple Creek.....	W. A. Douglas.....	3,171	20	124			2,510	77
Dundurn.....	C. E. Goode.....	1,746				618	19	.....
Lumsden.....	A. S. Balfour.....							.....
Medicine Hat, Stair and Walsh.....	J. H. G. Bray.....	3,727	107	48	6	2,872	164	.....
WEST ASSINIBOIA.....		10,942	127	172	6	916	6,196	241

Stock Shipments.—Continued.

SHIPPING POINTS	INSPECTORS	EXPORTS				LOCAL SHIPMENTS		
		East		West		Cattle		—
		Cattle	Horses	Cattle	Horses	Stockers to ranges	Others	Horses
Red Deer	A. B. Nash			153			21	
Innisfail	H. A. Hetherington			86			76	
Edmonton	W. R. Howey					133		
Lacombe	A. M. Burdick	26	8	79			744	
Wetaskiwin	J. E. Miquelon	466		481			1,164	
Ponoka	A. Reid					58		
Leduc	C. W. Sheppard					31	60	
Olds	W. Deane			122			1,156	
NORTH ALBERTA		492	8	921		222	3,221	
Okotoks	J. Patterson			148			81	67
Coutts	H. Tennant							
Morley	F. Ricks	144	25	356				
Macleod	G. Skelding	571	897	547			49	271
Gleichen	A. F. M. Brooke	2,271	270	19			776	49
Pincher Creek	J. Herron	2,401	49	348	48		279	30
Cochrane	W. B. Elliott	527	8	800	2		100	
Clareholm	C. Sharples	2,300	58	356				40
Lethbridge	Thos. Scott	4,668	110				408	40
High River and Cayley	W. H. Todd	4,518	231	1,200			570	434
Calgary	R. A. Janes	1,149	217	2,101	81		861	231
SOUTH ALBERTA		18,549	1,865	5,875	131		3,124	1,162
Rosthern	J. H. Klassen						63	
Prince Albert	W. Plaxton	1,595				608	241	
Duck Lake	W. J. Campbell	110				130		
Saskatoon	D. W. Garrison	2,555						
SASKATCHEWAN		4,260				738	304	

HIDE INSPECTION.

As indicated in last year's report, the enforcement of the provisions of The Stock Inspection Ordinance dealing with hides was, under an arrangement with the Commissioner of the North-West Mounted Police, placed entirely in the hands of that force. It is taken for granted that the administration is satisfactory, as no complaints have been received in this Department of failure on the part of the police force to properly fulfil the duties contemplated under the arrangement in question.

HORSES.

This subject has been very fully dealt with by the Secretary of The Territorial Horse Breeders' Association, whose report is reproduced elsewhere.

Horse Breeders' Lien Ordinance.—Stallion owners do not appear to take advantage of this law. The usual number of bogus pedigrees were, however, received in the Department during the past year and refused.

SHEEP.

I am pleased to be able to state that the past year was a prosperous one for Territorial flockmasters. I commented in the last annual report upon the regrettable fact that sheep raising was, for various reasons, on the decline in the Territories. Reports which have been received up to date do not indicate any improvement in this respect during the past year. It seems an extraordinary thing that, with a favourable home market for wool and an unlimited export market for mutton, the sheep industry of the Territories should show no appreciable tendency to expand. A comparison with the colony of New South Wales would not seem inappropriate. This colony contains an area slightly over 310,000 square miles, as compared to a total area of 304,000 square miles comprised within the boundaries of the North-West Territories. In addition to carrying cattle stock at least ten times as great as that of the Territories, New South Wales contains 40,000,000 sheep at the present time, and less than ten years ago, the sheep stock numbered 61,000,000 head. The total sheep stock of the Territories at the present time is approximately 225,000. When one comes to consider the large tracts of country in Western Assiniboia and Southern Alberta admirably adapted to sheep raising on a large scale, which have never been utilised, and the crowded condition of the ranges in the United States, which has frequently led to most serious conflict between cattle and sheep men, often ending in bloodshed and the wholesale destruction of sheep, it seems surprising that the sheep stock of the country should be decreasing rather than increasing.

I referred in the last Departmental report to the possibility of running sheep profitably by means of confining small flocks within coyote-proof fenced enclosures, increasing the carrying capacity of such areas through the growing of rape, alfalfa or cultivated grasses. In view of the fact that the problem facing Territorial farmers or ranchers in respect to sheep raising, on a scale too limited to warrant the employment of a shepherd, is precisely identical with the difficulties in the way in the State of Montana, the following extracts from a leading article in *The Rocky Mountain Husbandman*, of Montana, bearing on the subject are of interest :

We have written many columns of matter encouraging our readers to engage in sheep. . . . But while satisfied of the advantages of sheep on the farm we have never lent our efforts to inducing the Montana farmer to keep sheep. We have always felt that there was a question about the practicability of keeping sheep except in sufficient numbers to justify a herder. . . . But we find that the problem of keeping sheep in small flocks in our older settled valleys is being successfully solved. The woven wire fence is a great factor in making small flocks advantageous to the farm. The enclosing of meadows and pastures with woven wire fences makes an enclosure that will keep sheep in bounds, does not drag the wool out of the sheep as barbed wire does, and at the same time is in some measure a protection against dogs and coyotes. Already the farmers of the Bitter Root valley are beginning to handle sheep in small flocks. These people are lamb and mutton producers rather than wool growers, and are building up a good business. . . . In conversation with some of the Bitter Root farmers engaged in this pursuit they said : " You recommended this to the large owners, so we thought we would try what could be done on a small scale and it is a decided success." These men also expressed the belief that as the country advances sheep raising will become the rule rather than the exception on the small farm. Already these flocks are numerous in the farming districts of the western slope, and they are beginning to be introduced in our older valleys on the eastern slope, and the indications are that ten years hence a great many farmers who own small areas will be keeping from fifty to three hundred head of sheep. It is certainly a branch of husbandry worthy of encouragement.

Mutton.—About 380,000 head of sheep were imported into Great Britain during the year, out of which Canada furnished some 35,500. The bulk of the foreign mutton consumed in Great Britain is in the shape of

frozen mutton supplied by New Zealand, the Australian colonies, Patagonia and the Argentine Republic. It is very unlikely that Canada will ever be able to compete against these countries in the production of cheap mutton; certainly, the eastern Provinces cannot hope to, and the future of the Canadian mutton trade with Great Britain, therefore, rests solely on the development of sheep raising in the Territories. If a trade can ultimately be built up in high quality refrigerated or chilled mutton it would be greatly to the advantage of the West. The bulk of the mutton produced in the westerly portion of the Territories during the year went to British Columbia, in all 2,016 head; large shipments of Assiniboia sheep were consigned to Winnipeg, and some 664 head to points east of Port Arthur.

Wool.—The weight per fleece of the Territorial clip showed no material difference in the aggregate over that of last season. A slight increase was reported in some localities which, however, was offset by a corresponding decrease in others. The prices offered were favourable. Owing chiefly to over speculation early in the season, the British wool market was dull during the past year, which caused a reduction in Australian wool prices. Fortunately, however, Territorial wool values are not very materially affected by outside influences. Both the United States and Canada, where our wool is wholly marketed, are large importing countries, probably to the extent of 50 per cent. of the local consumption and will probably remain so for years to come.

Winnipeg prices ranged from 8 to 9 cents up to the end of April. New wool was placed in the market in the first week in May. In the beginning of June prices were quoted at from 8 to 8½ cents. In the middle of June they rose to 8¾ to 9 cents, and towards the end of that month the value of unwashed wool was 7 to 9 cents. In July prices were quoted at 12½ cents for washed wool, as low as 8 cents being paid for unwashed fleeces. The ranche clip of the Territories sold at between 10 and 12 cents per pound.

The local market value of wool in the various portions of the Territories, exhibited the usual interesting vacillation. Flockmasters report sales at all the way from 7 to 12½ cents per pound for coarse, unwashed wool. The fact that our sheep industry is largely in the pioneer stage, is doubtless responsible for these unreasonable fluctuations in values, as quality and grade of our unclassified wool should vary very little. If our production were heavier, it is more than likely that more careful wool classing would be resorted to with the result that prices would show greater stability.

The following district reports are compiled from information received in the Department from sheep raisers in the various portions of the Territories:

Eastern Assiniboia.—The conditions of the sheep industry in this district during the past season are much the same as stated in last year's report. No diseases have affected the flocks, although one case of fluke and another of dropsy were reported. The only drawback has been the losses caused by wolves and coyotes. Some seem to consider hounds a measure of safety, but others complain that these dogs are worse than the wolves and report serious losses caused by them. Spear grass has injuriously affected the lambs in some localities, but has not been widely complained of. The increase on the whole, has been quite as good, or a little better than in the past, although those who had the lambs come early

suffered considerable loss through cold. All agree, however, that the weather in April and the beginning of May was very favourable for lambing.

The average fleece weighed a fraction under eight pounds and would appear to be slightly lighter than the clip of the previous year; the price ranged from 7 to $12\frac{1}{2}$ cents and was in most cases 25 per cent. higher than last season. The preference is given to Shropshire rams and this breed is found at the head of forty-five per cent. of the flocks, Leicesters of thirty-six per cent. and Cotswold rams are used in ten per cent. of the flocks. The complaint is still made that well bred rams are hard to get locally.

Western Assiniboia.—The increase in this district, which is *par excellence* the sheep district of the Territories, is reported to have been from 5 to 15 per cent. higher than in 1899. The weather was very favourable for lambing, with the exception of a few days of extreme heat. Under these conditions, mosquitoes proved somewhat troublesome at many points. More attention is apparently now being paid to regulating the period of lambing and with most satisfactory results. Over 60 per cent. of the rams used were Oxfords and 23 per cent. Shropshires. Flocks have been in an exceedingly healthy condition, although abortion was prevalent on one ranche and footrot slightly on one or two others. The usual loss from natural causes of about 5 per cent. occurred. Complaints of depredations by coyotes are very general.

Several flocks suffered from the effects of eating poisonous weeds which, however, were not specified, but were probably larkspur which is treated of in the Noxious Weed Bulletin.

The wool clip averaged $6\frac{1}{2}$ pounds per fleece, being somewhat heavier than last year and the prices ranged from half a cent to $2\frac{1}{2}$ cents higher, averaging $10\frac{1}{2}$ cents per pound. Higher prices were received both for wool and mutton than are said to have been paid for the last eight years.

Saskatchewan.—Although the number of breeders in this district was largely augmented by the advent of Doukhobors, who seem inclined to go into sheep raising, the industry is not in a flourishing condition. The losses from wolves and coyotes have proved discouraging and a number of flocks have been closed out. No diseases were prevalent and the weather was very favourable for lambing, thus making the increase slightly better than that of previous seasons. Very few purebred rams are in use and inbreeding is practised to a great extent. Seventy-five per cent. of the rams are Shropshire grades of purebreds.

An improvement is noticed in last year's clip, the average fleece weighing $8\frac{1}{2}$ pounds, as compared to 8 pounds in 1899. The price received from the wool ranged from 6 to 10 cents according to the quality, averaging $7\frac{3}{4}$ cents.

Northern Alberta.—The increase in this district was about the same as in 1899. The dates at which lambing commences vary greatly where the flocks are small, and the rate of increase depends largely on the shelter provided. The rams used were 50 per cent. of Shropshire and 30 of Leicester breeding. New blood is badly required in some parts of this district. There was a marked freedom from disease during the year, although a few flocks were affected by footrot and one by goitre. The principal losses were caused by coyotes and by the exceptionally wet season. Spear grass, while not generally complained of, caused a loss of about 10 per cent. in the Buffalo Lake country.

The average weight of fleece was 7.38 pounds, while that of the previous year was 7.5 pounds. At some points, difficulty was experienced

in finding buyers and the prices obtained ranged from 6 to 12½ cents, averaging 9½ cents per pound for unwashed wool.

Southern Alberta.—This and Western Assiniboia are the only districts where there has been any increase in the number of flocks. The lamb crop was much better than that of 1899, and the weather was very favourable during lambing with the exception of a few wet days. The rams used were 60 per cent. Shropshire, 25 Oxfords and a few Rambouillets or French Merinos.

There were no serious losses from disease, but scab was said to have been prevalent at points on the Rosebud Creek, and footrot was not infrequent, sometimes resulting in lame sheep falling a prey to the coyotes, which resulted in heavy losses on some of the ranches. Spear grass again claimed a few victims in certain localities, but was not generally troublesome. There have, however, been numerous complaints of poisoning in the spring and in several cases, the crocus anemone (*Anemone patens* v. *Nuttalliana*) was said to have been the cause. However, no reasons were given for this belief nor were symptoms described. In one case, 2,000 sheep in one flock, south of Lethbridge, were said to have been affected about the beginning of May by an unknown weed, but only 1 per cent. died. Steps are being taken to ascertain the cause of these fatalities so that, if possible, a remedy may be suggested. Some loss was occasioned by the severe storm which occurred about the twentieth of September, before the sheep had been placed in winter quarters.

The wool clip was considerably better than that of the previous season and averaged 7.25 pounds per fleece, being an increase of over half a pound. An improvement was also noticed in the prices obtained for wool, which ranged from 7.5 to 12.5 cents and averaged 11.1 cents per pound.

SWINE.

It is pleasing to note, that the Territories is gradually reaching the point when the local demand for fresh pork can be supplied by home breeders. During the year 1899 some 1,925 head of hogs were brought into the Territories from the Provinces of Ontario and Manitoba. During the past year the total importation only amounts to 670 head, 368 from Ontario and 302 from the Province of Manitoba, and from the former should be deducted 211 head, imported by this Department for breeding purposes, which brings our total importations below 500 head. Cured meats are, however, brought in at about the same rate as before. The erection at Edmonton and Calgary of extensive pork packing establishments should, in time, exercise an influence on the importation of cured pork, as it is hoped, that within very few years, those concerns will be able to draw a sufficient supply of hogs from Northern Alberta to supply local demands as well as a large share of the cured meats required in the mining districts of British Columbia.

The following schedule shows a comparison of prices paid for live and dressed pork at Edmonton and Calgary, between the year 1899 and the past year.

MONTH	WINNIPEG				EDMONTON			
	Live		Dressed		Live		Dressed	
	1899	1900	1899	1900	1899	1900	1899	1900
	c. per lb	c. per lb	c. per lb	c. per lb	c. per lb	c. per lb	c. per lb	c. per lb
January.....	4 $\frac{3}{4}$	4 $\frac{3}{4}$	6 $\frac{1}{4}$	6 $\frac{1}{2}$	4 $\frac{3}{4}$	.....	5 $\frac{3}{4}$	6 $\frac{1}{8}$
February.....	4 $\frac{3}{4}$	4 $\frac{3}{4}$	6 $\frac{1}{4}$	6 $\frac{1}{2}$	4 $\frac{3}{4}$	.....	5 $\frac{3}{4}$	6 $\frac{1}{8}$
March.....	4 $\frac{3}{4}$	5	6 $\frac{1}{4}$	6 $\frac{1}{2}$	4 $\frac{3}{4}$	.....	5 $\frac{3}{4}$	6 $\frac{1}{8}$
April.....	4 $\frac{3}{4}$	5	.....	.....	4 $\frac{3}{4}$	5 $\frac{1}{8}$	5 $\frac{3}{4}$	.....
May.....	4 $\frac{3}{4}$	5 $\frac{1}{4}$	.....	.....	4 $\frac{3}{4}$	5 $\frac{1}{8}$	5 $\frac{3}{4}$	.....
June.....	4 $\frac{3}{4}$	5	.....	.....	4 $\frac{3}{4}$	5 $\frac{1}{8}$	5 $\frac{3}{4}$	.....
July.....	4 $\frac{3}{4}$	5	.....	.....	4 $\frac{3}{8}$	5 $\frac{1}{8}$	6	.....
August.....	4 $\frac{3}{4}$	5	.....	.....	5 $\frac{1}{4}$	5 $\frac{1}{8}$	6 $\frac{3}{4}$	.....
September.....	5 $\frac{1}{8}$	5 $\frac{1}{4}$	.....	.....	5 $\frac{1}{4}$	5 $\frac{1}{8}$	6 $\frac{3}{4}$	.....
October.....	5 $\frac{1}{8}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	.....	4 $\frac{3}{4}$	5 $\frac{1}{8}$	6 $\frac{1}{4}$	.....
November.....	4 $\frac{3}{4}$	5 $\frac{1}{4}$	5 $\frac{3}{4}$	6 $\frac{1}{2}$	4 $\frac{3}{4}$	.....	6	6 $\frac{1}{8}$
December.....	4 $\frac{3}{4}$	5	5 $\frac{3}{4}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$	.....	5 $\frac{3}{4}$	6 $\frac{1}{8}$

IMPROVEMENT OF SWINE.

Alberta.—A memorandum was published in last year's report setting forth the manner in which the Department proposed to encourage the production of the bacon type of hogs in Alberta. An arrangement was entered into between the Canadian Pacific Railway Company, the Calgary & Edmonton Land Corporation and the Department, whereby the two former agreed to defray the cost of transportation and incidental expenses in connection with a series of public sales of selected swine along the Calgary & Edmonton Railway, in consideration of the Department taking charge of the organisation. In accordance therewith, sales were held as follows: Calgary second of May, Olds third, Red Deer fourth, Innisfail fifth, Lacombe seventh, Wetaskiwin ninth, Leduc eleventh and Strathcona on the twelfth of May. The shipment arrived during the last week in April, and Mr. Honeyman, chief clerk in this Department, proceeded west and represented the Department at the various sales, taking entire charge of the same. I herewith attach Mr. Honeyman's report, to which is appended a statement of the total receipts and expenditure. It will be noticed that the statement in question shows a total loss on the shipment of \$141.51. In pursuance of the arrangement entered into with Mr. A. M. Nanton, on behalf of the Calgary & Edmonton Land Corporation, that company paid the amount in question, so that the scheme was carried out without any expenditure of public funds beyond the cost of the clerical work in connection with the organisation.

Report of J. R. C. Honeyman.

In accordance with instructions I left Regina on the morning of the twenty-ninth April to superintend the sales of purebred and high grade swine imported under the auspices of the Department for distribution at the principal points on the line of the Calgary & Edmonton Railway Company.

As soon as possible after my arrival at Calgary I visited the stock-yards and found that all the sows had been unloaded and turned into a

convenient yard which had been made as comfortable as possible for them. This was done under the supervision of Mr. F. W. Hodson, the Dominion Live Stock Commissioner, whom I met on the ground and who took the most lively interest in the sales and spared neither time nor trouble in order to make the first one a success. Mr. Hodson accompanied us as far as Olds, returning to Calgary after the sale there.

The animals appeared to have stood the journey well and seemed lively and healthy. The boars being in crates could not well be turned out. Up to the afternoon of the second when the Calgary sale started, my time was fully occupied in making arrangements in connection with the sale, purchasing supplies and interviewing the C. P. R. and C. & E. officials and arranging transportation on the north road, besides paying frequent visits to the stockyards. The railway authorities fell in readily with the arrangements proposed and offered every facility in the way of handling our cars to the best advantage. With the exception of two instances when it was found possible to utilise "specials" and so avoid the necessity for having the cars hauled by passenger trains, the schedule prepared in the Department under your directions was adhered to.

The general arrangements in connection with the sales were as follows: Only a limited number of animals was offered at each point and in disposing of these efforts were made to have representatives of each of the three breeds (male and female) disposed of at each sale. Purchasers were not allowed to pick animals until after the last sale at Strathcona, though an effort was made to offer as far as possible, the class of animal desired. In this way there was no "culling" and the animals offered at the last sale were quite as good, to say the least, as those disposed of further south. No effort was made to force sales and if an animal got no bids it was put back in the car. Before commencing each sale the terms of sale were fully explained by the auctioneer. These were briefly: Animals to be sold for cash only. Not more than one boar and two sows to be sold to any one person. The purchaser of each animal to sign an undertaking not to sell or otherwise dispose of the animal or remove it from the North-West Territories without first obtaining the permission in writing of the Commissioner of Agriculture. The auctioneers also explained to those attending the sales that the Department did not wish to hold the animals for large prices, but merely, if possible to cover the original cost plus a small addition to cover the expense of feed and attendance. The objects desired by the Department in bringing in animals of the class offered were also made plain. As a matter of fact, as will be seen from the attached statement, the shipment did not quite pay for itself, largely owing to the fact that no expense was spared to provide for the animals' comfort during the whole of the trip and maintain them in the best of health and condition. This end was accomplished and the last animals sold were to all appearance as lively and healthy and in as good condition as the first. I think it says a good deal for Mr. J. G. Foster, and his subordinates who had charge of the animals, that notwithstanding the fact that a period of 22 days elapsed between the date on which the animals left Ontario and that on which the last was disposed of, nearly the whole of which time they were confined in the cars, the boars in crates, out of a shipment of 211 only two were lost; one owing to a severe injury received in transit, and the other from some cause which could not be ascertained, it having been found dead in the car one morning. Every opportunity was taken of allowing the animals fresh air and exercise, but this could only be done in one or two instances owing

to the bad condition of the majority of the stockyards along the line of the Calgary & Edmonton Railway, caused by the previous wet season. The weather during the period covered by the sales was on the whole unexceptional, which no doubt contributed to the favourable attendance.

When shipped each animal was furnished with an ear tag the number on which corresponded with its number on the shipping lists furnished by Mr. Westervelt, which showed the weight and cost of each. Unfortunately a considerable number of tags had got torn out during the journey and consequently it was impossible to identify these by the list. In such cases a rough estimate was made of the weight and the upset price fixed accordingly. A blank was furnished to every purchaser of an animal with an ear tag giving name of breeder and in the case of sows the date of service and register number of the boar. The public attending sales were duly advised by the auctioneers that the Department could not guarantee any particular animal to be in pig.

Throughout the sales by far the greatest preference was evinced for Berkshires. Many would not look at any other breed. The Tamworths were a comparative novelty and caused considerable comment, not always of a favourable nature. There were, however, quite a number of farmers who appreciated the value of this breed and bought them readily, but the majority of those attending the sales were newly arrived American immigrants from Nebraska and the Dakotas, many of whom had never seen pigs of this type before. There were a considerable number of inquiries for Poland Chinas, which were, of course, not represented in our shipment.

The Calgary sale was well attended, many of the leading ranchers and farmers of the district being present. The bidding was lively and at times the competition was quite keen. As will be seen from the subjoined statement, the average price realised per animal was highest at this point. The auctioneer was Mr. Grogan of Messrs. Ellis & Grogan of Calgary. At this and all other sales I acted as clerk to the auctioneer and took charge of the proceeds.

The Olds sale was the most poorly attended of any, principally owing to the fact that the advertising notices sent out by the Department had barely reached the outlying districts. This, as you know, it was impossible to avoid. Nothing but Berkshires were in demand at this point.

The sales at Red Deer, Innisfail, Lacombe, Wataskiwin and Leduc took place at the times and on the dates advertised and call for no particular remarks. All sales from Olds north were conducted by Mr. S. W. Paisley of Lacombe, who well justified the Department's choice. He did not confine himself strictly to his duties as auctioneer, but was always ready to make himself generally useful in any way in his power.

At Strathcona the directors of the local agricultural society took a great deal of interest in the sale and had managed to arouse considerable interest among the farmers of the district. Mr. A. W. Toll, the energetic secretary of the society, was unsparing in his efforts to make everything go off well and rendered me personally very valuable assistance during the course of the sale. The sale was very largely attended and the bidding was good. We had a considerable number of animals to dispose of, namely, 66. Fifty-four were disposed of by auction and one or two were sold by private bargain afterwards. Acting on instructions received from you I offered the balance to the agricultural society to dispose of for us at the upset prices fixed by the Department. The directors held a meeting at which I was present and explained the Department's proposition. After some

discussion they decided not to entertain it. Subsequently the small number of animals remaining were sold to the Brackman Kerr Milling Co. at a fair price.

The statement herewith submitted shows all particulars with regard to the disposal of the animals, the amounts realised and the expenses incurred.

After completing the business I returned by first train to headquarters.

STATEMENT OF SWINE SALES.

Receipts.

Date of sale 1900	PLACE OF SALE	NO. SOLD							Average price	Amount realised	No. of individual purchasers
		Berks		Yorks		Tams		Total			
		Sows	Boars	Sows	Boars	Sows	Boars				
May 2	Calgary	6	1	13	2	7	2	31	\$17.52	\$ 543.16	20
" 3	Olds.....	10	1	0	0	0	0	11	17.03	187.03	10
" 4	Red Deer.....	7	4	3	0	1	0	15	16.37	245.50	12
" 5	Innisfail.....	10	0	6	1	2	1	20	15.63	312.75	15
" 7	Lacombe.....	13	2	6	0	4	0	25	16.39	409.75	23
" 9	Wetaskiwin.....	10	1	6	3	6	1	27	15.91	429.75	17
" 11	Leduc.....	6	1	4	1	2	0	14	15.75	220.50	10
" 12	Strathcona.....	26	1	23	4	12	0	66	16.04	1,058.00	41
								209			
	Died.....							2		\$3,406.44	
								211			
	Sale of crates and car fittings.....									\$19.75	
	Loss on shipment.....									\$141.51	
										\$3,567.70	

Expenditure.

185 sows	\$2,555.35	
26 boars	351.55	
Collecting and shipping		\$2,906.90
Crate material		188.09
Services of J. G. Foster, April 17 to May 19	65.00	25.50
Services two men 29 days @ \$1.00	58.00	
Board and expenses of men	50.45	
		173.45
Auctioneer, Calgary	10.00	
Auctioneer, 7 other sales	50.00	
Expenses of auctioneers	7.50	
		67.50
Livery	8.00	
Telegrams	7.15	
Commissions on drafts and orders	9.95	
Postage and stationery	1.95	
		27.05
Travelling and living expenses of chief clerk		47.50
Advertising	29.86	
Printing	6.75	
		36.61
Feed, water and hay		95.10
		\$3,567.70

Saskatchewan.—Reference was made in last year's report to the advisability of conducting similar sales in the district of Saskatchewan. The experience gained in connection with the western sales, indicated that it would be more satisfactory to hold such sales during the month of November, in order that female stock disposed of could be bred in December or January by the purchasers themselves, to produce spring litters. Under such an arrangement the sows would only be about six months old and could, therefore, be sold at from \$4 to \$7 per head less than those brought to Alberta. It was also found, that there was some risk in shipping sows far advanced in pregnancy, and, that in spite of the care which was taken, some of the sows brought up aborted or had failed to breed.

The various agricultural societies in Saskatchewan were communicated with and information sent them as to the manner in which the Department was prepared to deal with the matter. Some of the societies in question evinced considerable interest in the proposal, and it is probable that a series of institute meetings will be held during the year, when the matter can be further discussed by Departmental delegates face to face with the farmers.

It should also be mentioned that negotiations were opened up with Mr. A. M. Nanton, agent of the Qu'Appelle, Long Lake and Saskatchewan Railway Company, with a view to securing the co-operation of this concern. Mr. Nanton advised the Department officially, that his company would be prepared to pay any loss sustained in connection with the proposed sales in Saskatchewan. The Canadian Pacific Railway authorities also offered to grant free transportation for any further shipments of swine, up to a reasonable limit, which the Department would bring into the Territories and dispose of under the conditions outlined.

Assiniboia.—Representations were received in July last from the Saltcoats Board of Trade, asking the Department to organise a series of swine sales along the Manitoba and North-Western Railway in the Territories, should it be found that the farmers in the various districts affected would guarantee to patronise the sales. Full information was forwarded to the board and the Department signified its willingness to meet its wishes. Both the Saltcoats and Yorkton Boards of Trade took the matter up, but after making inquiries throughout the district, it was found that such sales were not likely to meet with success, and it was, therefore, arranged to postpone action for the present.

BRANDS.

Transactions under Ordinance.

Transfers.....	{ 1899.... 132	
	{ 1900.... 165	
Changes.....	{ 1899.... —	
	{ 1900.... 27	
Searches and extracts.....	{ 1899.... —	
	{ 1900.... 35	
Brands on old records.....		3,228
Cattle brands.....	{ 1898.... 2,111	
	{ 1899.... 1,466	
	{ 1900.... 1,508	
	—	5,085
Horse brands.....	{ 1898.... 941	
	{ 1899.... 821	
	{ 1900.... 886	
	—	2,648
Total allotments to end of 1900.....		10,961
Total number of transactions during 1899.....		2,419
“ “ “ 1900.....		2,621

Brand Records.—The administration of The Brand Ordinance was transferred to this Department in the early part of 1898. The brands on the existing records, which were re-allotted, numbered 3,228. During the year, 3,052 brands were allotted under the provisions of the new Ordinance. In the year 1899, the transactions under The Brand Ordinance apparently found their normal level, 2,419 allotments being made. The past year showed an increase to 2,621 transactions. In the early history of the brand administration, the opinion was entertained that the number of allotments would within a very short time fall far below that of 1898. That year showed an abnormally large volume of business owing to the fact that on the first of March, 1898, branding with recorded brands only became compulsory. It is, however, now quite apparent that this work will continue to increase in sympathy with the expansion in the live stock industries and the influx of settlers. By way of comparison, it is of interest to note that the total number of brands on the records of the State of Montana is 18,000. The allotments there during the year 1899 were 1,300 and during 1900, 1,600. The latter is the largest number of brands ever placed on the records of that State in any one year. The brand records of Queensland, Australia, are of a more voluminous character. Up to December 31, 1900, some 40,026 brands had been recorded; out of these only 833 were registered during the year 1899.

I may say that the work of the brands branch of the Department was greatly facilitated by the passage of the present Ordinance at the last session of the Legislative Assembly, repealing the old law and providing more perfect machinery for handling the somewhat extensive business of this branch. A number of changes have been made in existing records, under the provisions of the Ordinance in question, and the searches and extracts from the records during the year numbered thirty-five. It is likely that these transactions will increase from year to year.

Cattle Brands.—There are on the books of the Department 16,499 cattle brand designs; of these 5,085 have been issued, the remainder are not available because in some cases they would be liable to conflict with brands under the old system but more particularly to avoid the difficulties which would probably arise if brands of like appearance were allotted in the same district. Two brands of the same combination, though totally distinct one from the other, might, under certain circumstances, lead to no little trouble where brands are read from horseback at a distance. In localities where farming rather than ranching is undertaken, such difficulties would be less likely to arise.

Amongst cattle brands recorded under the system in vogue previous to 1898, several single character brands were in use, which were duly re-allotted when the books were taken over by the Department. These brands have caused a vast amount of inconvenience in allotting under the present system, as they are often of such a character that they can easily be converted into designs, apparently totally dissimilar, and thus conflict with five combination brands out of ten. Although every effort has been made to safeguard the owners of these brands, it is in some instances almost an impossibility. It is a generally accepted fact among cattlemen that the greatest measure of safety lies in a reasonably large brand and that a single character brand most easily admits of being tampered with. Such being the case, there would not seem to be any particular hardship inflicted upon the few dozen owners of such brands, if the brands in question were cancelled subject to a couple of years' notice and re-allotted with the addition of a bar, quarter circle or half diamond above or below. Such action would open up several hundred very desirable combinations to the general public.

The provision of the present Ordinance, with respect to the recording of neck and jaw brands for cattle, has answered the purpose for which it was framed. Such brands have been allotted almost entirely to breeders of purebred stock. Sixty-three brands of this description have now been recorded. Such brands are also frequently used in conjunction with other cattle brands as distinctive marks. To buyers, who are constantly shipping large numbers of cattle, collected from different parts of the country, all of which bear the brands of the various breeders, these simple brands are very convenient, as they do not depreciate the value of the hide as much as a larger brand would, and still furnish adequate means of identification.

The present manner of branding causes the cattle owners of this country much annual loss. Hide dealers are complaining bitterly of the indiscriminate manner in which brands are placed on cattle. I was informed by one of the largest export dealers of cattle in the West, that the deterioration in the value of a cattle hide with a rib brand amounted to not less than one cent per pound. While conceding that it is absolutely necessary, particularly in the ranching districts of the Territories, that cattle should be marked distinctly and permanently, it is a matter for consideration whether the convenience of a large and staring brand is worth the cost thereof, when the hide comes to be docked on account of the leather being ruined by the branding iron.

It would appear that two remedies might with advantage be practised. The placing of the brand on the thigh, as near the hock as possible, would not injure the hide to any appreciable extent, as this portion thereof is usually trimmed off before tanning. Another improvement which could

be adopted, is a reduction of the size of the brand. There might be some objection to adopting this suggestion in the ranching districts, but I fail to see the necessity for rib brands in Northern Alberta and in that portion of the Territories lying east of the Third Meridian, where it is not essential, or indeed at all material, that brands should be easily read at a distance. Here the brand chiefly serves as a convenient means of identification in case of dispute and would be quite as efficient for that purpose low down on the thigh, as on the shoulders or ribs.

Horse Brands.—There was a small increase in the number of horse brands issued. The more recent settlers, amongst whom the greater number of brands have been allotted, appear to give their attention more to the cattle industry. The coming year promises an improvement in this respect, as applications are much more numerous than at the corresponding period of last year. It is of interest that in a great many instances the allotment of a cattle brand has brought an application for the same design for horses.

Transfers.—During the past year there have been 165 applications for the transfer of cattle and horse brands, being an increase of thirty-three over the previous year. A great development in this branch of the brand work may be anticipated in the near future, as once a large number of brands have been recorded, the business will doubtless develop more into the transfer of older brands, than to the recording of new ones. There are now a large number of unused brands on the books and every encouragement should be given to facilitate the transfer of those, and thus have them brought into active use.

Chemical Branding.—I referred in last year's report to the subject of branding by means of chemicals. The invention of Mr. Campbell, of Victoria, Australia, has been further developed during the year and it is now believed that chemical cauterising, leaving a permanent mark devoid of hair without injuring the skin for tanning purposes, will soon be an accomplished fact. The composition is said to consist of equal parts of barium sulphide and coal tar, preferably thinned by a mixture of American potash and water, in equal parts by measure, and of spirits of turpentine, each equal in measure to the original composition. Sulphides of the alkalis or alkaline earths are often substituted for the barium sulphide. The liquid resulting from this mixture is applied to the hair or wool of the animal with a cold, cross corrugated branding iron and destroys the same, branding the hide in a permanent and conspicuous manner and without injury to it. It is recommended that the brand should be applied in the spring or when the winter coat has been cast. Where the hair is long it should be partly shorn off before the brand is applied.

I referred in last year's report to the negotiations which were pending between the inventor of this chemical branding fluid and a New Zealand concern, which proposed to go largely into the manufacture thereof. The necessary arrangements were completed during the year and through the courtesy of Mr. J. A. Kinsella, dairy commissioner, Wellington, New Zealand, recently superintendent of creameries in the Territories, two sample tins of the chemical in question were obtained and arrangements have now been made to have careful experiments conducted in various parts of the Territories, with a view to ascertaining whether this method of branding will prove expeditious and efficient under our conditions.

Brand Book.—A sufficient number of copies of the North-West Brand Book, which was issued under the authority of this Department, were procured and distributed to all pound keepers and mounted police posts.

It would be well if an annual supplement could be published, so that our stock inspectors could have the brand book brought up to date at least once a year. Judging from the number of transfers and new allotments, however, it would appear as if a complete and revised issue would be required every second or third year.

THE HERD DISTRICT.

Additions.—The Herd District was enlarged during the past season by the addition thereto of the following areas :

Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18 in Township 23 Range 16; Township 22 in Range 16; Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35 and 36 in Township 22 Range 17; and Sections 1, 2, 3, 10, 11, 12, 13, 14 and 15 in Township 23 Range 17, all lying west of the Second Meridian.

Township 40 in Ranges 2, 3, 4, 5 and 6, and that portion of Township 41 in Range 2 lying south and east of the South Saskatchewan river, all lying west of the Third Meridian.

Townships 14 and 15 in Ranges 21 and 22 and Township 15 in Range 23, all lying west of the Second Meridian.

Withdrawals.—The following area was, during the year, withdrawn from the Herd District, viz., Township 8 Range 1 west of the Second Meridian.

ESTRAY ANIMALS.

During the year 455 estray, 267 impounded and 146 lost animals were advertised in the supplement to the official gazette.

Sixty-one notices of estray and impounded animals, advertised in the gazette and bearing registered brands, were sent out of the Department to the recorded owners of such brands during the year. In this way a good many lost animals were restored to their owners, and the Department is in receipt of a number of letters from parties whose stock was restored to them by this means, expressing their appreciation of this branch of the work.

I cannot leave the subject of estray animals without some reference to the very satisfactory effects of the improved administration consequent upon the organisation of this Department. When the Department was first established, the question of estray animals received particular attention; it was felt that pound keepers had not in the past been in close enough touch with the central administration and that, owing to the limited machinery at the command of the Lieutenant Governor's office, very little effort had been made to properly administer the Ordinances dealing with the capture and disposal of estray animals. Steps were taken as soon as practicable to locate the various pound keepers and supply them with copies of the Herd and Pound District Ordinances under which they performed their duties, and otherwise have them properly instructed. As much publicity as possible was also given to the provisions of the Estray and Entire Animals Ordinances. The immediate effect of this activity was that a voluminous correspondence was initiated with the Department, and, as the provisions of the Ordinance became more clearly understood and appreciated, the transactions increased proportionately and now form an important item of the clerical work of the Department, occupying about half the time of one clerk.

The following statistical statement showing the amounts collected under the Estray, Entire Animals and Herd Ordinances from the year 1885 up to the present year, is of peculiar interest and shows clearly that the time occupied in conducting the routine work incidental to the administration of these Ordinances is well spent and performed to some good purpose. In fact, hardly any branch of the Department has responded so satisfactorily to the efforts made towards its improvement.

Statistical Statement Respecting Estray, Entire and Impounded Animals.

YEAR	Total Amount Collected	(1) Revenue	(2) Refunds
1885-86.....	\$ 42.25	\$ 42.25	.....
1886-87.....	.....	.....	.....
1887-88.....	.....	.....	.....
1888-89.....	.....	.....	.....
1889-90.....	.....	.....	.....
1890-91.....	.....	.....	.....
1891-92.....	19.00	19.00	.....
1892-93.....	.....	.....	.....
1893-94.....	18.00	18.00	.....
1894-95.....	.....	.....	.....
1895-96.....	.....	.....	.....
1896-97.....	95.95	95.95	.....
1898-99 (16 months)	356.95	321.00	\$ 32.95
1900.....	1,137.15	588.83	548.32

(1) This column shows actual revenue from lapsed proceeds of sales deposited to the credit of the general revenue fund.

(2) This column shows the amounts of proceeds of sales paid to the rightful owners of stock disposed of under the Estray, Entire Animals and Herd Ordinances.

Another effect of the improved administration of the laws respecting estray animals, is shown by the fact that while in 1899, out of 486 animals reported estray, 86 per cent. were recovered by the owners, in 1900, with a large increase in the number of animals owned in the Territories, which resulted in 868 estray animals being reported to the Department, the proportion of these recovered by their owners rose to 90 per cent.

Sales of Animals Impounded Under The Herd Ordinance.

Poundkeeper	Location	Class of Animals	First Gazette Notice	Date of Sale	Net proceeds
G. A. E. Hyde	N.W. 22-19-7 W. 2	Stallion	May 15, 1900	June 13, 1900	\$17.38
Jas. H. Coventry	S.E. 28-15-24 W. 2	Sorrel mare and roan horse	May 31, 1900	June 23, 1900	57.10
John Morton	N.W. 28-21-11 W. 2	Bright bay mare	May 15, 1900	June 27, 1900	3.15
John Morton	N.W. 28-21-11 W. 2	Dark brown mare	Aug. 15, 1900	Sept. 24, 1900	.05
John Morton	N.W. 28-21-11 W. 2	Gelding, gray mare, mare and colt and a dark bay mare.	Oct. 31, 1900	Deca. 19, 1900	25.37
G. G. Axford	W. 1/2 20-16-7 W. 2	Bay colt	June 15, 1900	June 30, 1900	34.90
G. G. Axford	W. 1/2 20-16-7 W. 2	Mare and foal	June 15, 1900	Aug. 1, 1900	38.63
John R. Hoyle, jr.	N.W. 28-18-19 W. 2	Sorrel gelding	June 15, 1900	July 13, 1900	8.97
G. H. Brownrigg	S.W. 22-16-1 W. 2	Mare and colt	June 15, 1900	July 13, 1900	19.80
Henry Dixon	N.W. 2-20-10 W. 2	Pony colts	June 30, 1900	July 17, 1900	21.17
Josiah Gilbert	N.W. 34-16-18 W. 2	Four horses	May 31, 1900	Aug. 15, 1900	15.25
Arthur Biggus	S.E. 2-15-3 W. 2	Mare and foal and stallion	June 30, 1900	Aug. 15, 1900	15.40
Chas. Irwin	S. 1/2 2-37-5 W. 3	Dark bay and sorrel mares	July 31, 1900	Aug. 11, 1900	5.48
Elias Cuming	S.W. 22-13-4 W. 2	Light bay colt	July 31, 1900	Aug. 23, 1900	13.00
John R. Balfour	S.W. 24-20-12 W. 3	Light red cow	July 31, 1900	Aug. 28, 1900	83.05
Geo. Langley	S.W. 34-42-2 W. 3	Four horses	July 14, 1900	Sept. 12, 1900	
Robt. Matchett	S.W. 23-18-17 W. 2	Horse	Aug. 31, 1900	Sept. 24, 1900	
Louis Arnold	22-17-13 W. 2	Pony mare			

Sales of Estray Entire Animals.

Justice	Address	Class of Animal	Date of capture	First Gazette notice	Date of sale	Net proceeds
J. W. Silverthorn	Olds	Bay stallion		July 30, 1899	March 15, 1900	
J. W. Silverthorn	Olds	Stallion		March 31, 1900	May 9, 1900	\$.20
J. W. Silverthorn	Olds	Dark iron gray stallion		July 31, 1900	Sept. 13, 1900	9.95
W. H. Minninnick	Kinbrae	Buckskin broncho stallion	Jan. 10, 1900	Jan. 15, 1900	Feb. 13, 1900	
W. H. Minninnick	Kinbrae	Bay broncho stallion	Jan. 10, 1900	Jan. 15, 1900	Feb. 13, 1900	
Thos. Copland	Saskatoon	Dark sorrel stallion	Jan. 5, 1900	Jan. 15, 1900	Feb. 15, 1900	
R. T. Telford	Leduc	Stallion		March 15, 1900	April 17, 1900	
Walter Crosskill	Medicine Hat	Bull	June 4, 1900	June 15, 1900	July 24, 1900	
Joseph Hollis	Kutawa	Stallion		July 14, 1900	Sept. 4, 1900	13.74
Joseph Hollis	Kutawa	Bull	Aug. 4, 1900	Aug. 15, 1900	Sept. 30, 1900	
Wm. Kirby	Red Deer Hill	Bull	Aug. 8, 1900	Aug. 15, 1900	Sept. 25, 1900	

Sales of Estray Animals.

Justice	Address	Class of Animals	Date of capture	First Gazette notice	Date of sale	Net proceeds
J. W. Silverthorn.	Olds.....	Cream horse.....	.....	July 15, 1900.....	Jan. 10, 1900.....	\$33.30
J. W. Silverthorn.	Olds.....	Roan mare.....	.....	July 30, 1899.....	May 23, 1900.....	24.33
J. W. Silverthorn.	Olds.....	Four ponies.....	.....	May 15, 1900.....	Dec. 26, 1900.....	8.22
Wm. Kirby.....	Red Deer Hill.....	Red and white heifer.....	.....	Jan. 31, 1899.....	Jan. 8, 1900.....	10.10
A. S. Rosenroll.....	Wetaskiwin.....	Horse.....	.....	July 31, 1899.....	Feb. 3, 1900.....	3.85
O. Tourigny.....	Adair.....	Bright bay broncho mare.....	.....	Aug. 31, 1899.....	March 13, 1900.....	9.70
Henry M. Douglas.....	Innisfail.....	Red steer.....	.....	April 15, 1899.....	Jan. 5, 1900.....	31.10
J. S. Macdonald.....	Qu'Appelle Stn.....	Light bay mare.....	.....	June 30, 1899.....	Jan. 26, 1900.....	37.92
Geo. F. Guernsey.....	Fort Qu'Appelle.....	Sorrel pony mare.....	.....	Sept. 30, 1899.....	May 25, 1900.....	11.55
Thos. Moore.....	Dougola.....	Bay gelding.....	.....	Aug. 31, 1899.....	May 5, 1900.....	46.70
F. S. Proctor.....	Qu'Appelle.....	Dark bay pony mare.....	.....	Aug. 15, 1899.....	April 17, 1900.....	5.65
Ed. Field.....	Fishing Lake.....	Yearling colt.....	.....	Oct. 14, 1899.....	May 4, 1900.....	20
Laurence Adamson.....	Fort Saskatchewan.....	Grey mare.....	.....	Jan. 15, 1900.....	June 25, 1900.....	13.60
F. M. Rogers.....	Innisfail.....	Red cow and yearling bull.....	June 23, 1898.....	Aug. 15, 1899.....	July 24, 1900.....	24.50
F. M. Rogers.....	Innisfail.....	Steer.....	October, 1899.....	Jan. 15, 1900.....	July 31, 1900.....	1.42
A. Olson.....	Ohlen.....	Yearling steer.....	June, 1899.....	Dec. 15, 1899.....	Sept. 15, 1900.....	44.50
W. J. Dawson.....	Crescent Lake.....	Mare and filly.....	Feb. 3, 1900.....	Feb. 15, 1900.....	Oct. 16, 1900.....	11.00
Thos. H. Garry.....	Yorkton.....	Brindle cow.....	August, 1899.....	Mar. 14, 1900.....	June 30, 1900.....	42.20
W. P. Hopkins.....	Yorkton.....	Two head of cattle.....	.....	April 30, 1900.....	Oct. 12, 1900.....	43.60
R. T. Telford.....	Leduc.....	Bay mare.....	.....	March 31, 1900.....	Nov. 9, 1900.....	10.40
Wm. Logan.....	Wapella.....	Cow and calf.....	Feb. 25, 1900.....	Nov. 30, 1899.....	Nov. 12, 1900.....	1.85
A. H. B. Bastien.....	Rocanville.....	Heifer.....	Nov., 1899.....	July 15, 1899.....	Sept. 27, 1900.....	27.12
T. S. Cornell.....	Pheasant Forks.....	Two pony geldings.....	May, 1899.....	Mar. 15, 1900.....	Dec. 24, 1900.....	7.50
Angus Urquhart.....	Yellow Grass.....	Pony gelding.....	Jan. 1, 1900.....	Feb. 27, 1900.....	July 25, 1900.....	10.53
R. Ritchie.....	Strathcona.....	Heifer and steer.....	July, 1899.....	.....	.....	.....

GAME PROTECTION.

At the beginning of the year 127 game guardians were acting. During the year 36 new guardians were added to the staff and the resignation of one was accepted, making the total number now acting 164. The revenue from game licences fell off very considerably during the year. Only ten licences were issued under Section 20 of the Ordinance, which was only 50 per cent. of the number issued last year. Six guest licences were issued as against nine during 1899.

Game guardians have been kept fully posted as to amendments to the Ordinance and rulings thereunder during the year, and, as far as the Department is aware, very few infractions of the law were brought to the attention of guardians which were not promptly followed up by prosecutions.

PRAIRIE AND FOREST FIRES.

Although a considerable area of country was burnt over during the past year, the excessively wet fall had a favourable effect in the way of preventing fires. The number of guardians acting at the beginning of the year was 179. During the year fifteen additional guardians were appointed and the resignations of five were accepted, leaving the fire guardian service at the end of the past year numbering 189. The Department has endeavoured to keep in close communication with this service and to properly instruct the various guardians in their duties and advise them of any changes in the law.

It is a matter of very great importance to have the public properly informed as to the provisions of the law, and, with that end in view, a poster containing a synopsis of the Ordinance was issued during the year 1898 and extensively circulated throughout the Territories. The supply is now exhausted, and as the experience of the Department is that such posters are seldom left for many months in the place where they were put up, I would recommend that a new edition be printed in time for distribution before the prairie fire season commences next autumn. While on this subject, it would be well to call attention to the desirability of having the provisions of the Ordinance translated into three or four of the more important foreign languages spoken in the Territories, for the information of the foreign population, which has in the past, mainly through ignorance, caused a number of very serious fires.

A bad fire swept over the Touchwood and McDonald Hills, the File Hills and Loon Creek districts. Very considerable damage was done, several farmers losing everything they possessed. The local guardians, Messrs. Brice and McDonnell, took prompt steps to bring the guilty parties to justice. Another very serious fire occurred in Western Assiniboia, where an immense extent of country, lying between the railway and the boundary line, was burnt over and also the area lying between the railway and the South Saskatchewan river in the vicinity of Swift Current and Medicine Hat. This resulted in the winter range of that portion of the country being partially destroyed. It was stated that a dealer took a thousand stocker cattle into this district but was unable to dispose of them, as no one felt inclined to take the risk of wintering these extra head of stock owing to the great area of pasturage that had been destroyed. Some nine thousand sheep narrowly escaped destruction in the vicinity of

Magrath. They were only saved by starting another fire in advance and by driving the sheep on to the burnt ground.

A number of complaints were received in connection with the fire-guards provided by the Canadian Pacific Railway Company. It was suggested that the guards in question should be ploughed shallower than has been done in the past, on the principle that deep ploughing encourages the growth of weeds, while shallow cultivation would have a tendency to stunt any vegetation which may spring up during the summer on these guards.

The most deplorable feature of these fires is the enormous amount of timber that is destroyed annually. Considerable damage of this nature was done last year in the Cypress Hills. It is asserted that since the settlement of the Territories the destruction of timber has increased from year to year. The Indian was in the habit of burning off the grass in the spring before the snow melted in the timber. This prevented lightning from setting fire to the prairie during the hot summer weather. An illustration of the effect of this safeguard was seen in the Swift Current district, where the north side of the railway was burnt early in the spring and where no fire was started by lightning during the fall, while on the south side fire occurred in half a dozen places owing to the presence of three crops of grass on the ground. It is understood that the Department of the Interior proposes to move actively in the matter of the preservation of timbered areas during the present year, through the organisation of a forest ranging system to cover most of the important timber preserves in the Territories. Some time ago work along this line was done in the Wood Mountain district with very beneficial results, and it is hoped that the scheme will be extended, so that we may look forward to the time when the destruction of forests by the agency of prairie fires will largely cease.

DESTRUCTION OF WOLVES.

The inspectors acting for the Department during the year were the same as acted last year, with the exception of Mr. E. F. Gigot, who was appointed to the inspectorship at Macleod made vacant by the death of Mr. John Black. At the close of 1899 bounties for the destruction of wolves were paid by The Western Stock Growers' Association in accordance with the following schedule :

For each full grown female	\$10.00
“ “ “ dog	5.00
“ “ “ pup	2.00

On the twentieth of April the Department was notified by the secretary of the said association that it had decided to raise the bounty for pups to \$3.00.

On application received from The Willow Bunch Stock Growers' Association it was considered desirable to pay a bounty for wolves in that district, and the following regulations for the issue and payment of warrants were then formed under your direction and approved by His Honour the Lieutenant Governor in Council on the first of June :

Any association paying bounties under these regulations shall file for the approval of the Commissioner of Agriculture a schedule showing the scale upon which such bounties are to be paid.

The pelt (including the head) of each timber wolf upon which bounty is claimed must be produced intact to the inspector by the person claiming the bounty.

The issuer of the warrant shall use every means in his power to satisfy himself as to the sex of any wolf where bounty is claimed on bitch wolves and as to the age

where bounty is claimed on adult wolves. Bounties on adult scales are only to be paid when the issuer is satisfied that the animals are sufficiently developed to be destructive of themselves.

Upon the production of the pelt of any timber wolf to him, and on being satisfied that the animal killed was a timber wolf and not a coyote or other species of the wolf family, the issuer of the bounty warrant shall punch a portion out of each ear, so as to effectually prevent duplication, and may issue a warrant to the claimant for the amount of the bounty. The inspector shall number consecutively and keep a list of all warrants issued, and shall send a copy of such list to the secretary of his association periodically.

Upon the warrant being sent to the said secretary as a voucher, a payment of the amount of the bounty is to be made to the person named in the warrant, who will give his receipt therefor on the warrant.

On the last days of June, September and December in each year, the secretary of any association paying bounties under these regulations shall mail to the Department of Agriculture at Regina all such receipted warrants, accompanied by a statement in duplicate showing the number of each voucher, the amount of the same and in whose favour issued. A payment will then be made out of any legislative appropriation in that behalf (until exhausted) of one half of the total amount so paid out in bounties upon wolves by such association for the period covered by the statement.

These regulations remain in effect until otherwise specified.

On the first October last The Western Stock Growers' Association made a further change in the bounties, which now stand as follows: For each full grown animal, \$15.00; for each pup, \$3.00. The Willow Bunch Association decided to pay a level bounty of \$10.00 per head for all gray wolves killed.

It does not appear that the increase in the bounty has resulted in an increased number of wolves being killed, for whereas for the half year ending June 30, 289 animals were killed, during the last half year only 102 were killed, making a total for the year of 391, for which bounties to the amount of \$1,947.00 were paid, this Department paying half in accordance with the provisions of the regulations on the subject.

The following statement shows statistics as to the number of wolves killed in the Territories during the year on which bounties were paid together with similar information covering the preceding year:

Association		Dogs	Bitches	Pups	Total
Western Stock Growers'	{ 1899 1900	75 73	43 54	336 264	454 391
Willow Bunch Stock Growers'	{ 1899 1900	1 2	..... 1	.....	1 3
The Territories	{ 1899 1900	76 75	43 55	336 264	455 394

From the returns made to the Department by stock owners from all over the Territories, it would appear that the worst infested districts are as follows: Porcupine Hills, Maple Creek and the following places in the Medicine Hat district: Eagle Butte, Many Berries and Josephsburg. Serious losses are reported from the Pincher Creek district, though it is stated that the wolves are becoming less numerous there. In particular portions of the Macleod district, the wolves are reported as very troublesome and getting more so.

VITAL STATISTICS.

The work in connection with the records of births, marriages and deaths shows, as was to have been expected, a substantial increase over that of last year. Indeed, the entire services of one clerk are now pretty well absorbed in connection with this work. There is evidence to show that this feature of the Department's work is being taken more advantage of by the public, as the applications for extracts and searches of the records are becoming more numerous. During 1899, thirteen searches were made and eleven extracts furnished, while during the past year, the searches numbered thirty-five and the extracts thirty.

A good deal still remains to be done with regard to the indexing and arrangement of the records. This work is hindered to a considerable extent by the limited vault accommodation available for a proper and systematic keeping of the records which, year by year, acquire a greater volume.

In the absence of any reliable information as to the actual population of the Territories, the statistics of births, marriages and deaths can have only a partial value; and on this account the census, which is about to be taken, is looked forward to with considerable interest, fairly correct figures as to the incoming population being available through the immigration authorities. At the present time it is, of course, impossible to make comparisons of any value with other provinces and countries.

The stricter administration of The Vital Statistics Ordinance which has been found possible under the reorganisation of the work by this Department since taking it over, has produced very much better results than were expected. Returns are now made by registrars with great promptness and accuracy and increased interest in the work is observable. It is fair to assume that nearly all marriages are properly registered and a very large proportion of births and deaths as they occur, though there is no doubt that there is still considerable room for improvement which can only come through the dissemination of information with regard to this part of the settler's civil duties.

No alterations have been made during the year in the number or arrangement of registration divisions, which are given below with the names and post office addresses of the registrars. It is probable, however, that some changes will have to be made at an early date owing to the rapid increase of population through settlement in certain districts.

In connection with the returns of deaths, it was thought well to adopt some system of classification of the causes of deaths which would render them available for comparison with similar statistics of other provinces and states. Through the kindness of the deputy registrar general for the Province of Ontario, Dr. Peter D. Bryce of Toronto, the Department was furnished with particulars of what is known as the Bertillon system of classification, constructed by Dr. Jacques Bertillon, chief of statistics of Paris, France, which has already been adopted by the Provinces of Ontario and Quebec, the State of Michigan, and many other states and countries. It is not claimed for the system that it is a perfect one, but it is the first serious attempt at a good working classification which promises to become universal, a state of affairs which for half a century has been aimed at by registrars, health officials and students of vital statistics. The system as it now stands is the result of a revision undertaken by the First Decennial International Revision by the Congress of Demographers held

during the Paris exhibition, at which delegates from countries undertaking registration work all over the world were represented. The system will be revised and brought up to date every ten years by similar congresses.

Early in December a schedule of causes of deaths, which is an adaptation of the Bertillon system of classification to the requirements of the country, was drawn up and issued to all medical men in the Territories, in order that they might be governed by it in making returns next year, and mortality returns for the past year have been compiled under this classification, as far as was found possible. The Department regrets that some medical men still continue to give purely symptomatic manifestations of diseases as the actual causes of deaths. It is hoped that the adoption of the new system will eliminate this undesirable feature from this branch of the statistical work. Subjoined will be found the usual tables of vital statistics of the year.

REGISTRATION DIVISION	REGISTRAR	POST OFFICE
South Qu'Appelle.....	Jos. Doolittle.....	Qu'Appelle South.
Wetaskiwin.....	P. A. Miquelon.....	Wetaskiwin.
Weyburn.....	Thos. Tucker.....	Weyburn.
Banff.....	D. White.....	Banff.
Maple Creek.....	J. J. English.....	Maple Creek.
Whitewood.....	A. A. Gillis.....	Whitewood.
Moosomin.....	O. Neff.....	Moosomin.
Indian Head.....	W. H. Campkin.....	Indian Head.
Moose Jaw.....	H. McDougall.....	Moose Jaw.
Wolsley.....	J. T. Nutrie.....	Wolsley.
Prince Albert West.....	J. M. Mair.....	Prince Albert.
Souris East.....	E. J. Coade.....	Carievale.
St. Albert.....	J. A. Tierney.....	St. Albert.
Strathcona.....	H. F. Sandeman.....	Strathcona.
Red Deer.....	S. P. Fream.....	Innisfail.
High River.....	Alex. McRae.....	High River.
Medicine Hat.....	Mrs. J. McWhirter.....	Medicine Hat.
Regina.....	Mrs. E. F. Grover.....	Regina.
Calgary.....	W. L. Bernard.....	Calgary.
Cannington Manor.....	E. N. Maltby.....	Cannington Manor.
Rosthern.....	Gerhard Eus.....	Rosthern.
Prince Albert East.....	W. Spencer.....	Prince Albert.
Mitchell.....	P. Garnot.....	Duck Lake.
Cardston.....	C. E. Snow.....	Cardston.
Battleford.....	L. P. O. Noel.....	Battleford.
Macleod.....	A. F. Grady.....	Macleod.
Saltcoats.....	A. B. Lander.....	Saltcoats.
Lethbridge.....	C. B. Bowman.....	Lethbridge.
Edmonton.....	St. George Jellett.....	Edmonton.
North Qu'Appelle.....	Geo. F. Guernsey.....	Fort Qu'Appelle.
Grenfell.....	Ed. Fitzgerald.....	Grenfell.
Kinistino.....	C. S. Lowrie.....	Kinistino.
Victoria.....	S. W. Anderson.....	Fort Saskatchewan.
Souris East.....	Wm. Stableford.....	Lippentott, Man.
Cannington West.....	Thos. Cope.....	Oxbow.
Yorkton.....	Wm. Hopkins.....	Yorkton.
Batoche.....	F. Touroud.....	Duck Lake.

Vital Statistics, 1900.

DIVISION	Births	Marriages	Deaths
Souris East.....	48	21	12
Cannington East.....	11	.....	4
Moosomin.....	42	50	30
Saltcoats.....	96	21	27
Kinistino.....	10	2	3
Prince Albert East.....	55	22	27
Souris West.....	27	18	.....
Cannington West.....	33	6	6
Whitewood.....	75	22	23
Yorkton.....	98	11	22
Grenfell.....	88	33	20
Wolseley.....	50	11	13
Weyburn.....	12	.....	4
Indian Head.....	56	20	25
Qu'Appelle South.....	67	16	21
Qu'Appelle North.....	127	32	59
Regina.....	163	42	38
Moose Jaw.....	71	26	37
Batoche.....	23	2	17
Rosthern.....	82	24	15
Mitchell.....	38	14	27
Prince Albert West.....	38	10	10
Maple Creek.....	39	9	10
Battleford.....	43	8	14
Medicine Hat.....	96	24	44
Lethbridge.....	75	25	9
Calgary.....	203	90	91
Red Deer.....	131	40	51
Wetaskiwin.....	77	25	31
Strathcona.....	126	23	31
Victoria.....	108	39	31
Cardston.....	81	16	23
Macleod.....	51	24	19
High River.....	28	5	7
Banff.....	23	8	22
Edmonton.....	194	67	68
St. Albert.....	106	21	46
The Territories..... { 1900.....	2,691	827	937
..... { 1899.....	2,383	671	759
Increase.....	308	156	178

Ratio of births to deaths..... { 1900 2.87
 { 1899 3.14

	Males.	Females	Excess of males
Births..... { 1900.....	1,369	1,322	47
..... { 1899.....	1,251	1,137	114
Marriages..... { 1900, mean marriage age.....	29.20	Males	Females
..... { 1899, ".....	29.54	23.26	23.49

Native Countries of the Contracting Parties.

COUNTRY	Males	Females
Canada.....	395	413
Great Britain and Ireland.....	167	126
United States of America.....	76	91
Other countries.....	182	189
Not stated.....	7	8

Religious Denomination of Officiating Clergymen.

Roman Catholics solemnised	154	marriages
Presbyterians	236	"
Methodists	155	"
Baptists	26	"
Church of England	142	"
Evangelical Lutheran	30	"
Mennonites	27	"
Greek Catholics	6	"
Mormons (Latter Day Saints)	13	"
Lutherans solemnised	29	"
Greek United	4	"
German Baptists	1	"
Moravians	4	"

		Males	Females
Deaths.....	{ 1900.....	504	433
	{ 1899.....	405	354

PUBLIC HEALTH.

During the year several minor outbreaks, or suspected outbreaks, of infectious or contagious diseases were reported to the Department. In most cases they were dealt with by the local authorities without any Departmental action being required. In one or two cases, however, it was found necessary to send a medical man to investigate at the public expense.

On the thirtieth March the attention of the Department was drawn to the fact that smallpox existed to some extent in the Kootenay district in British Columbia and inquiry from the British Columbia Board of Health elicited the fact that on the seventh of April three cases were under treatment, two in Rossland and one in Grand Forks. The first case occurred on the eighth of February and there were eleven cases in all, at different centres. Only two cases spread from these and nine were traced to the State of Washington. On account of the prompt measures taken by the provincial authorities, no contagion from this direction was spread to the Territories.

On the twenty-seventh of April the Department was informed by the secretary of the Provincial Board of Health of Manitoba, that smallpox had broken out in the general hospital in Winnipeg. The facts are, that a person named Finlayson, coming from Australia over the Canadian Pacific Railway from Vancouver, was taken ill while on the train and was admitted to the Winnipeg General Hospital. Two days after his admission he died. Smallpox afterwards made its appearance in two of the nurses and developed in a number of others at a later date. A number of Territorial patients were discharged from the said hospital between the dates of Finlayson's admission and the correct diagnosis of the disease. The

necessary action was taken to have these people placed under observation and no outbreak occurred from this source in the Territories. The smallpox in this case was of the regular Asiatic type, and what might have proved a very serious outbreak was obviated by the vigorous action of the Manitoba authorities. On the eleventh of May the Department was notified that the outbreak was practically at an end and all patients quarantined were well on the road to recovery.

On the thirteenth of August the Department received telegraphic notification that there was a suspected case of variola at Innisfail. The result of the investigation by medical men was that the patient was convalescing from a moderately severe attack of variola. The man and his wife had arrived from the United States by way of Minneapolis about June twenty-fifth, where she had been under quarantine for some time owing to exposure to smallpox. The necessary action was at once taken and the case rigidly isolated, with the result that recovery took place without any outbreak resulting.

On the twentieth of November an epidemic of smallpox was reported at the Catholic Mission, near Fort Ellice, in Manitoba. The Manitoba authorities took all necessary action in the way of quarantine, but as a source of danger existed in a camp of halfbreeds north of Moosomin, who were said to be constantly coming and going between there and Fort Ellice, it was found necessary to quarantine the camp and vaccinate the halfbreeds. In this, as in the other cases mentioned, the North-West Mounted Police were called upon to enforce the quarantine and did so most effectively. The halfbreeds in question, being practically without means of support while under quarantine, provisions had to be furnished them during the quarantine period at some considerable expense. No outbreak occurred among them and the quarantine was raised in the early part of the present year.

A telegram was received in the Department from Dr. R. B. Deane on the twenty-sixth of December, stating that three cases of pustular, contagious nature, resembling varioloid, had occurred in the village of Maple Creek. Authority was immediately forwarded to call in another doctor in consultation. The result of the consultation was, that the disease was diagnosed as varicella cullosa. Subsequent events proved this diagnosis to be erroneous, and that the disease in question was, as a matter of fact, varioloid, and steps were then taken by the Department to establish a quarantine district covering the affected area and to rigidly enforce The Public Health Ordinance. The history of this outbreak, which was only in its initiatory stage at the close of last year, will properly form part of the Departmental report covering the current year.

It may just be mentioned that in accepting the diagnosis of variola or varioloid in connection with the eruptive disease which was prevalent in the Maple Creek district and to some extent in Northern Alberta, the Department came in for very severe criticism, particularly at the hands of a number of medical men, who insisted upon diagnosing these cases as varicella. Indeed, in the Maple Creek district no less than ten different diagnoses were advanced.

The Department had information to the effect, that an extremely modified form of variola had been epidemic in a great many of the States to the south of the line, in the Province of British Columbia and in Eastern Canada for some time previous to the disease making its appearance in Manitoba or the Territories. The health authorities, everywhere, met

with stubborn opposition on the part of medical practitioners, who, some times on technical grounds and often, apparently, in order not to expose their neighbourhoods or patients to inconvenient quarantine restrictions, insisted upon a diagnosis which would not bring such cases within the provisions of the law respecting infectious and contagious diseases.

Bearing on this subject, it is of interest to note, that in a recent report to the Ontario Board of Health, the secretary, Dr. Bryce, referred particularly to the prevalence of varioloid in that Province, characterising the outbreak as the most serious event in the history of the public health administration of that Province during the past twenty years, and stated that the widespread character of the outbreak was due to the accident of the location of the first cases, which were in the far off northern forests, away from physicians and the outside world. The following is an extract from the document in question:

In some cases local officers and licensed medical men have positively refused to accept the history of infection, and, depending on some preconceived clinical picture of smallpox, have pronounced it chickenpox. In every case of this kind the hands of the local boards of health have been tied and the disease has spread. It may be excusable in any physician to make a mistake, but to persist in such to the detriment of the public is enough to properly characterise him as an enemy to the State, and when such men take an active part in stirring up opposition to the officers of health and the law it would seem that they deserve the strongest reprobation. The dignity of the profession and the privileges the profession have had accorded them under The Medical Act demand that the Ontario Medical Council should summon before it and punish for unprofessional conduct men much more dangerous to the public than self confessed quacks.

Equally to be reprobated are those medical men who, forgetful of their vows taken at graduation, have issued certificates and received money for the same stating that the holders of such certificates have been successfully vaccinated, when on subsequent examination by the inspectors of the Provincial Board of Health or other medical health officers they have again and again been found to have no vaccination whatever.

I attach herewith a statement of the occurrence of contagious or infectious diseases within municipalities during the year, also a schedule showing the causes of deaths returned under The Vital Statistics Ordinance. Some explanation was given in the last Departmental report of the apparently high death rate from tuberculosis and the fact, that 24 per cent. of these cases occurred amongst the halfbreed population in the registration district of North Qu'Appelle. The usual appalling death rate from that cause has taken place in that portion of the Territories during the year and in a report upon a family residing there, craving charitable aid, some weeks ago the mounted police constable made the following significant remark: ". . . the sickness referred to is the usual complaint prevalent among this class, running sores from neck and face, . . ." It is quite evident, from the general presence of these sores, doubtless of a scrofulous nature, that tuberculosis is widespread in the district in question, and it would appear as if steps could with advantage be taken to have the matter investigated and, if practicable, to check the spread of this disease by isolating affected individuals and furnishing hospital accommodation for them.

With respect to the foreign population of the Territories the Department has experienced the same difficulties during the year in administering this Ordinance, as were briefly referred to in last year's report. A large number of new foreign community settlements are being formed every year, and, as a rule, these people do not employ duly qualified medical men in cases of illness and usually for very good reasons. They generally live a distance of from twenty to thirty miles from the nearest medical practitioner and naturally hesitate before they incur an expense, possibly exceeding the amount of their total worldly possessions and

much in excess to what they could hope to pay within any reasonable time, even though it might be a question of life or death to a member of the family. I do not see that any favourable change may be looked for until these people become more prosperous and better acquainted with our institutions, or medical men find it to their advantage to settle in the foreign speaking communities so that their services may be available and utilised by the class of people referred to at a reasonable expense. In justice to Territorial medical doctors, it should be stated that they are generally quite willing to drive long distances and perform charitable work when called upon to do so by needy individuals, but they could not, of course, be expected to look after the physical welfare of whole communities on such a basis, neither would it be justifiable to have it done at the public expense, except in so far as public safety demands it.

Statement of Contagious Diseases Occurring within Municipalities during the Year.

MUNICIPALITY	Typhoid fever	Diphtheria	Scarlet fever	Measles	German measles	Small pox	Total
Edmonton.....	1	1	7	..	..	..	9
Strathcona.....	1	7	4	..	2	..	14
Calgary.....	18	9	16	2	..	..	45
Macleod.....	..	..	3	..	..	..	3
Lethbridge.....	9	16	20	..	..	..	45
Medicine Hat.....	32	1	5	..	..	..	38
Moose Jaw.....	35	6	5	1	..	..	47
Regina.....	8	..	1	..	..	..	9
Wolseley.....	..	..	..	..	..	..	..
Whitewood.....	..	..	..	..	..	..	..
Moosomin.....	..	..	21	1	..	..	22
Prince Albert.....	..	..	..	..	..	..	..
Total.....	103	40	82	4	2	..	231
..... (1900	68	25	32	87	5	..	217
.....) 1899							

Mortuary Statistics, 1900.

GENERAL DISEASES			Totals	Certified by doctor	Sex		Born in				Age										Month											
					Male	Female	Canada	United States	Britain	Other countries	Not stated	Under 1	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 65	Over 65	Not stated	January	February	March	April	May	June	July	August	September	October	November	December
Number of column			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
I.—COMMUNICABLE (EPIDEMIC) DISEASES.																																
1. Typhoid fever			19	19	9	10	11	1	5	2	...	...	1	3	6	6	2	1	...	...	1	2	1	1	3	2	2	4	2	1	...	
2. Smallpox			5	3	3	2	4	1	...	...	...	4	1	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	...
3. Measles			10	5	2	8	4	...	1	5	...	3	6	1	...	...	...	...	...	...	...	...	...	...	5	...	...	2	2	...	...
4. Scarlet fever			8	4	3	5	6	...	...	2	...	3	4	1	...	...	...	...	...	...	...	...	...	...	1	1	3	1	...	...	...
5. Whooping cough			41	26	20	21	24	11	...	4	2	8	15	15	3	...	...	...	...	...	2	7	2	5	5	2	2	1	2	8	3	...
6. Diphtheria and croup			17	12	8	9	8	3	6	...	...	1	2	3	1	3	3	3	...	...	1	1	4	7	3	...	...	...	...	...	...
7. Influenza			1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8. Other epidemic diseases .....			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total			101	70	46	55	58	16	12	13	2	12	29	29	11	7	6	4	3	...	3	9	9	14	5	6	10	4	7	9	14	7
II.—OTHER GENERAL DISEASES.																																
1. Pyæmia and septicæmia			3	2	3	...	...	...	1	2	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	1	1	1
2. Malarial fever .....			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3. Tuberculosis and scrofula			103	59	52	57	93	3	4	6	3	8	6	13	34	22	9	14	2	1	4	11	5	19	8	16	11	9	10	...	5	4
4. Syphilis .....			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5. Cancer			17	14	7	10	2	1	7	7	1	...	...	...	15	2	...	...	...	3	...	...	...	...	...	...	4	4	1	1	1	1
6. Rheumatism and gout			4	4	1	3	2	1	...	...	1	...	...	2	1	1	...	...	...	...	2	...	...	...	...	...	1	...	...	...	...	...
7. Diabetes			4	4	1	3	2	...	2	...	...	...	...	1	1	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
8. Other General Diseases			4	4	2	2	2	1	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9. Alcoholism, acute and chronic			2	2	2	...	...	...	1	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total			143	89	68	75	101	6	16	15	5	8	7	16	36	26	25	19	5	1	7	13	8	24	9	18	12	14	14	9	7	8

LOCAL DISEASES

LOCAL DISEASES

III.—DISEASES OF NERVOUS SYSTEM AND ORGANS OF SENSE.

1	Encephalitis.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4	2. Simple meningitis.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
8	3. Epidemic cerebro-spinal meningitis.....	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
13	4. Congestion and hemorrhage of the brain.....	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
1	5. Softening of the brain.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9	6. Paralysis without specified cause.....	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
2	7. Insanity.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	8. Epilepsy.....	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
4	9. Convulsions (not puerperal).....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	10. Other nervous diseases.....																													
64	Total.....	64	45	32	32	48	1	10	3	2	19	12	5	3	4	3	6	12	9	5	6	7	5	7	6	2	4	5	8	

IV.—DISEASES OF THE CIRCULATORY SYSTEM.

2	1. Pericarditis.....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	2. Endocarditis.....	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
24	3. Organic heart diseases.....	24	27	19	15	13	14	7			2	1	2	4	2	4	13	6	4	3	4	6	2	2	1	3	5	1	3
1	4. Angina pectoris.....	1	1	1	1	1	1																						
2	5. Diseases of the arteries, atheroma aneurism, etc.....	2	2	2	2	2	2			1							1	1			2								
3	6. Other diseases of the circulatory system.....	3	3	3	3	3	3				2								1		1								
45	Total.....	45	37	25	20	21	16	7	1	4	1	3	4	5	6	15	6	1	5	3	7	6	3	5	3	3	5	1	4

V.—DISEASES OF THE RESPIRATORY SYSTEM.

7	1. Acute bronchitis.....	7	7	5	2	4	1	2		5		1																	
5	2. Chronic bronchitis.....	5	5	2	3	1	4					1																	
16	3. Bronchopneumonia.....	16	12	9	7	14			1	1	7	7																	
38	4. Pneumonia.....	38	20	19	19	21	1	6	10		11	6	3	5	3	2	5	3	4	1	5	7	3	3	4	4	1	4	2
5	5. Pleurisy.....	5	5	3	2	1	1	2	1																				
71	Carried forward.....	71	49	38	33	41	3	12	14	1	23	14	4	6	3	8	10	8	9	3	9	13	9	3	4	8	3	7	3

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DEPARTMENT OF AGRICULTURE

Mortuary Statistics.—Continued.

Number of Column																																
Brought forward.....																																
XI.—MALFORMATIONS, DISEASES OF INFANCY, DISEASES OF OLD AGE.																																
1. Still births.....	9	6	5	4	9						9									3	2	1	1							1	1	
2. Congenital debility and malformations.....	70	40	41	29	69				1		68	2								7	5	6	7	6	3	5	11			3	9	5
3. Other diseases of infancy	7		4	3	6	1					4	2	1							1		1	1	1	2	1				2	1	
4. Senile decay	17	8	9	8	6			7	2	2						1	16		3	2	3	2	1	1	3	1						
Total.....	103	£4	59	44	90	1	7	3	2	2	81	4	1			1	16		10	11	8	10	9	8	3	10	13		3	10	8	
XII.—SUICIDE.																																
1. Poison.....	1	1	1					1						1																		
2. Strangulation or hanging.....	1	1	1						1											1												
3. Asphyxia.....																																
4. Drowning.....	1	1	1						1											1												
5. Firearms	1	1	1		1															1						1						
6. Cutting.....																																
7. Other methods.....																																
Total.....	4	4	4		1		1	2						1	1	2	1						1	2								
XIII.—ACCIDENT.																																
1. Fractures and dislocations.....	4	4	3	1		1	2	1				1	1	1							1											
2. Gunshot.....	6	5	4	2	4	1				1															2	1	1			1	2	
3. Lightning.....	2	1	2				2																									
4. Drowning.....	6	6	2	6	4		2				3														1	1	2	2				
5. Exposure.....	8	5	7	1	4	1	2	1			1	2	1	1	2	1														3	1	
6. Riding or driving.....	5	4	4	1	2		1		2																					1	1	
7. Railways.....	3	1	3		2					1																					1	1
8. Burns and scalds.....	2	2	1	1	2						2																				1	1

[illegible]

HOSPITALS.

The following schedule shows the work of Territorial hospitals for the past Departmental year and also a comparison with that of the preceding year. It will be noticed that a very considerable increase has taken place in the number of patients treated and in the total number of days of treatment.

Hospital	Location	Total number of patients	Total number of days' treatment	Number of days' free treatment
Saltcoats	Saltcoats	27	443	378
Holy Cross	Calgary	435	6,983	3,214
Medicine Hat	Medicine Hat	413	7,319	4,829
Calgary	Calgary	413	6,198	3,405
Edmonton	Edmonton	359	6,338	4,867
Galt Hospital	Lethbridge	178	5,031	3,583
Macleod	Macleod	108	1,439	1,105
Regina	Regina	69	1,821	1,421
St. Albert	St. Albert	60	1,923	1,890
Victoria	Prince Albert	80	1,034	589
The Territories	} 1900	2,142	38,519	25,281
	} 1899	1,641	31,697	19,988
Increase .....	.....	501	6,822	5,293

During the year the Victoria Hospital of Prince Albert was added to the schedule, but I regret exceedingly to state that the cottage hospital at Saltcoats had to be closed on account of lack of funds. This was an excellent institution and covered an area of some 5,000 square miles containing an enormous foreign population badly in want of hospital accommodation. Very commodious premises have been provided for the Regina General Hospital, and a new hospital building was also erected at Edmonton, the Edmonton Public Hospital, which appears complete in every respect and is now ready for occupation. I took occasion during the year to visit the following hospitals and inspect their books, namely, general hospital, Medicine Hat; general and holy cross hospitals, Calgary; public and general hospitals, Edmonton.

I attach herewith a schedule containing statistical information in connection with hospital work in the Territories. Receipts and expenditures have been calculated on a basis of the past two years, as far as the Department has been able to gather the facts. It will be noticed that the total annual fixed expenditure for the maintenance of these institutions amounts to some \$54,000, while the average annual revenue only reaches \$49,000. It is, therefore, clear that Territorial hospitals are going into debt at the rate of \$5,000 to \$6,000 per annum. It is of interest to note that out of a total revenue of nearly \$49,000, only a fraction over \$5,000 is contributed by individuals residing outside the Territories. Another item of interest is the volume of charity work done by Territorial hospitals, the amount for the years 1898 and 1899 exceeding \$46,000.

In the Departmental report for the year 1898 I commented upon the opportunities presented by these hospitals to philanthropic people of means in Eastern Canada, to aid in a noble, practical and useful work. If the operations of our hospitals were confined to caring for the sick and needy

bona fide residents of the Territories, no justification could, of course, be urged for appealing to outsiders for assistance. Such, however, is by no means the case. Large foreign community settlements embracing thousands of people are continually being organised in the Territories, and an annual immigration of 14,000 to 15,000 individuals is pouring into the country in a continuous stream. As a rule these immigrants are people of very small means, and this enormous influx of the class of people, most frequently objects of charity on the part of such institutions, throws an almost insupportable burden upon the shoulders of our hospital contributors, and this burden is one which can in no sense be looked upon as of local concern only, but should rather be considered a national responsibility. These people have not the least shadow of a claim upon the resources of the local voluntary contributors towards hospital work in the Territories, who have done their full share when they provide for the charity cases which would arise under ordinary conditions.

The hospital problem of the Territories is a peculiarly difficult one. The people who so nobly undertake to supply the necessary funds for the maintenance of these worthy institutions are chiefly settlers of limited means struggling with pioneer conditions, and business men in a small way. While the country is yet in its formative stages and capital at a high premium, people in affluent circumstances, who as a class, subscribe liberally to charitable objects elsewhere, are naturally very few and far between. Wholesale dealers, manufacturers and business corporations, who annually derive large pecuniary profits from their transactions in the Territories, have their headquarters or residences in the eastern provinces and are not cognisant of the necessities of the case. It is firmly believed that an appeal to them in the interest of this work could hardly fail to have the desired effect.

In the past, attempts to raise funds in eastern Canada for any particular Territorial hospital have met with signal failure, but as eastern people are seldom particularly interested in any individual hospital here they would not, as a rule, feel inclined to give financial assistance towards it, while, if a general appeal were made in behalf of *Territorial Hospital Work*, fully setting forth the facts, it is believed that generous financial assistance could be obtained. In order to provide the necessary organisation for making any authorised efforts, such as indicated, I would suggest that the hospitals be invited to form a union for the purpose of soliciting assistance from outside sources, to be distributed on a basis of the actual work performed as shown by the returns to this Department.

Territorial Hospitals' Statistics.

Name of hospital	Town located in	Approximate area of district served in square miles	Total cost of buildings	Total cost of furnishings	Cost per patient			Amount of charity work done		Revenue—(average for the last two years)					Liabilities				Total indebtedness July 1, 1900			
					per day			1898		1899		Average total yearly cost of maintenance	Contributions from		Outside nursing	Pay patients	Total	Open accounts for running expenses		Interest bearing notes in banks	Mortgages on real estate	Rate of interest paid
					1898	1899	1898	1899	\$	%	N. W. T. including G. grants		E. Can. and other sources	\$								
Albion Cottage	Saltcoats	43.170	\$ 2,000.00	\$ 1,579.40	\$ 1.58	\$ 1.81	\$ 501.71	\$ 1,293.38	\$ 2,000.00	\$ 316.60	\$ 774.10	\$ 589.50	25.00	1,908.00	\$ 1,700.00	..	..	..	1,700.00
Begonia General	Begonia	43.170	6,000.00	1,000.00	1.88	1.81	501.71	1,479.56	2,427.57	1,959.98	1,483.30	1,483.30	..	3,453.26	394.50	..	..	..	5,450.50
Medicine Hat General	Medicine Hat	43.170	28,852.58	5,377.78	88.91	88.91	5,280.34	5,337.46	9,558.04	3,400.05	474.25	2,541.73	379.00	6,785.43	1,069.01	2,500.00	6%	..	5,285.01			
Prince Albert Victoria	Prince Albert	114.000	Rented	857.76	..	2.23	..	165.51	2,284.73	3,679.00	56.50	311.11	..	4,246.61	..	..	..	..	7,233.50
Edmonton Public	Edmonton	50.000	8,708.50	4,230.84	1.49	1.49	8,227.78	6,184.99	9,443.80	561.06	1,472.02	1,660.00	158.15	8,068.96	..	23,824.56	..	..	24,413.76	
Calgary General	Calgary	25.000	27,781.12	5,000.00	1.20	1.41	2,991.00	3,156.80	9,725.00	3,820.30	85.00	3,622.67	..	6,521.31	384.53	5,000.00	8%	..	5,000.00			
Calgary General	Calgary	25.000	29,750.00	3,986.00	..	..	3,104.58	2,465.70	6,489.67	2,488.29	..	2,549.65	30.00	4,152.88	384.53	..	..	..	584.53
Lethbridge	Lethbridge	25.000	21,407.69	5,000.00	88.12	1,022.98	475.30	3,179.84	6,489.67	3,016.29	..	..	..	4,152.88	564.93	..	..	..	594.93
Macleod General	Macleod	..	4,050.00	915.00	98.98	..	..	1,000.58	4,015.69	1,553.23	..	..	..	..	..	..	..	..	..
The Territories	The Territories	304.340	153,726.89	27,946.22	..	22.37	99	24,173.82	53,492.93	24,519.15	5,021.71	18,762.95	612.75	48,916.56	5,152.17	42,380.06	..	2,500.00	50,042.23			

INCURABLE.

At the close of 1899, the following incurable patients were in treatment at the Medicine Hat General Hospital: William Bowman, Catherine Mohr, Charles Bradford, John Smith and J. J. Taylor.

The following were placed on the list of incurables during 1900: Charles Morse, admitted to hospital February 25, 1899, is eighty years old, and suffers from enlargement of prostate gland and chronic *dyspepsia*. He is feeble and childish.

Robert Reid was admitted to the hospital on April 27, 1899; he is eighty-four years old, and suffers from chronic bronchitis, besides weakness due to old age.

James Condon, seventy years old, admitted June 10, 1899; suffers from chronic nervous disease. *Ataxic paraplegia*.

During the year John Smith and Charles Bradford died, and J. J. Taylor was committed as a lunatic. There now remain, therefore, five patients as a charge on the Department.

I made a careful inspection during the year of the incurable wards of the Medicine Hat General Hospital and am pleased to be able to state that I found every reasonable effort was being made by the hospital authorities and the medical superintendent to make the inmates contented and comfortable. They all expressed themselves as being perfectly satisfied with their treatment, food and quarters, and spoke in the highest terms of the uniform kindness and consideration shown them by the matron, Miss Burnham.

COLONISATION.

While active immigration work does not at present form part of the duties of this Department, a very considerable proportion of the Departmental correspondence during the year dealt with this subject. Soon after the organisation of the Department letters of inquiry from all parts of the world began to come in and the number of such communications is steadily increasing from year to year. It was found that too much time was consumed in replying in detail to each letter and arrangements were, therefore, made with the various land and railway corporations and the Dominion Government, for a full supply of all immigration literature issued by them to be kept on hand in the Department for distribution to prospective settlers. In most cases full information has been sent direct to parties making inquiries, but where such could not be done their letters were referred to the Dominion immigration officers.

The following tables, dealing with the colonisation of the Territories during the past year, show a steady increase in volume of immigration, number of homesteads entered for and area of lands sold, as compared with former years.

Immigration.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug	Sept.	Oct	Nov	Dec	Total
1898	133	166	1,042	1,702	1,129	1,124	809	308	349	224	300	173	7,463
1899	2,624	2,506	1,348	2,729	2,520	633	533	357	450	514	375	196	14,775
1900	151	240	2,415	4,115	2,205	2,307	1,297	995	645	795	422	163	15,750

Homestead Entries.

AGENCY	1898	1899	1900
Alameda.....	177	507	792
Yorkton.....	165	397	514
Prince Albert.....	143	513	359
Battleford.....		8	4
Regina.....	475	888	985
Lethbridge.....	195	286	347
Edmonton.....	623	936	1,309
Red Deer.....	108	531	785
Calgary.....	123	262	679
The Territories.....	2,009	4,334	5,774

Sale and Grant of Lands.

	1898	1899	1900
Dominion Government sales.....	Unknown	24,500	46,000
Canadian Pacific Railway Co.. sales.....	174,493	237,068	313,558
Acquired under homestead regulations.....	321,440	693,440	923,840
Total.....		955,008	1,283,398

The Doukhobor and Galician settlements in North-East Assiniboia were augmented to a considerable extent during the year and the settlers are reported to be in a fairly prosperous condition. A large number of settlers also went into this district from Minnesota, Iowa and the Dakotas; mostly to the Beaver Hills, west of Yorkton. The new comers to the Salteoats district were principally from Ontario and Minnesota.

Some 350 settlers came into the Regina district, but the immigration to Central Assiniboia, east of Regina, during the year, was not very marked. A considerable number of settlers went into the Weyburn and Estevan districts and the country around the Moose Mountains is being filled up at a rapid rate. Very little immigration has gone into West Assiniboia during the year.

Over 100 families of Galicians settled near Fish Creek and in the Carrot river district in Saskatchewan. The bulk of immigration into this part of the Territories comes chiefly from the Province of Manitoba and the States of Minnesota, South Dakota and Nebraska. A large number of Mennonite families with considerable capital settled near Rosthern.

As usual, Northern Alberta claimed the lion's share of the settlers that came into the Territories last year. The number of homestead entries made between Calgary and Edmonton showed a very large increase over previous years. It has been estimated that 1,000 families settled in the Edmonton district, representing upwards of 4,000 souls. Five hundred cars of settlers' effects were unloaded along the Calgary and Edmonton line at an estimated value of \$350,000. A large Mennonite settlement is going into Didsbury. The phenomenal growth of all the market towns along the line of railway in Northern Alberta is abundant evidence of the material increase in the agricultural population in that portion of the Territories.

The influx of Mormons into Southern Alberta is still going on. The efforts of the Canadian North-West Irrigation Company are largely

responsible for this addition to our population. These settlers are chiefly from the State of Utah. Another district in this part of the Territories which is claiming considerable attention is that of Pincher Creek. Little settlements are springing up all along the foothills west of Macleod, and the large ranchers are gradually being crowded out.

DEPARTMENTAL LIBRARY.

During the year the library of the Department has been augmented very considerably, chiefly through complimentary contributions from scientific institutions in nearly every part of the world. While the technical information thus gathered is of the greatest possible interest and value in carrying on the various branches of the Departmental work, it is unfortunately not in a condition which admits of convenient and ready reference. I would strongly urge that an attempt be made during the present year to have it properly indexed under subjects.

The Department is under great obligation to the various scientific institutions and agriculture departments in other provinces and states for valuable publications, compliments which this Department is as yet not in a position to reciprocate to any adequate extent.

The following periodicals are received regularly in the Department : Reliable Poultry Journal, Co-operative Farmer, Breeders' Gazette, Tidskrift af Landokonomie, Farming, Orange Judd Farmer, Farmers' Advocate, Scottish Farmer, Country Gentleman, Journal d'Agriculture, Irrigation Age, Live Stock Journal, Nor'-West Farmer, Poultry Review, Farming World, Pastoralists' Review of Australasia, Experimental Station Record, Commercial, Bradstreet's, Journal of the Royal Statistical Society, The Crop Reporter (United States), Monthly Weather Review (United States and Canada), United States Consular Reports, The Industrialist (Kansas), Labour Gazette, Queensland Agricultural Journal, Journal of Agriculture, South Australia; Agricultural Gazette, Tasmania, and Journal Board of Agriculture, Great Britain.

INSIDE STAFF.

The clerical staff of the Department during the year consisted of one chief clerk and accountant, one clerk in charge of the brand records, one correspondence clerk and one typewriter and stenographer. It was, however, found necessary to employ extra clerical assistance from time to time in connection with the collection and compilation of statistics and for general Departmental work.

The following comparative statement shows incoming and outgoing correspondence for the three past years.

	1898	1899	1900
Letters received.....	8,511	10,718	10,475
Letters sent	12,195	16,050	17,866
Circulars sent.....	3,949	6,388	12,760
Total	24,655	33,156	41,101

Comparisons are often drawn between the work of this Department and that of agriculture departments in other provinces of Canada, and the conclusion arrived at that, owing to the small population of the Territories, the work of the Department cannot fail to be correspondingly limited, and that consequently the Departmental staff should bear the proper proportion. This, however, is a most fallacious line of argument. In making such comparisons no allowance is usually made for the very important fact that a large number of the services administered by this Department, which monopolise a very considerable portion of the clerical assistance available, are, in the various provinces, dealt with directly by municipalities or local organisations, or by other departments of the public service. In order to make the position clearer it may be stated that the following twenty services embody practically all the work done by the local agriculture departments of Canada :

Agricultural societies,	Live stock associations,
Agricultural institutes,	Meteorological stations,
Agriculture experiments,	Noxious weeds inspection,
Brands,	Prairie and forest fire protection,
Charities,	Public health,
Dairy administration,	Registration of births, marriages,
Destruction of noxious animals,	and deaths
Game protection,	Stock inspection,
Hospitals,	Stray animals,
Importation of purebred stock,	Statistics, collection and compila-
Incurables,	tion of.

The following table shows how many of the above services are administered respectively by the various local departments of agriculture, by municipalities or other authorities and the number of the said services which are not performed in the provinces at all :

	Administration by		Service not performed in province
	Department	Municipality or other authority	
Territories.....	19	1	0
Manitoba.....	8	8	4
British Columbia.....	5	6	9
Ontario.....	7	8	5
Quebec.....	4	8	8

It will thus be seen that this Department deals with more than twice the number of services administered by any other similar department in Canada, and over three times as many as some of them. It is also a fact that owing to the very absence of dense population considerable additional labour is thrown on the shoulders of the Department; channels through which the Department has to act are imperfect and the methods of obtaining information are necessarily circuitous and crude. This is particularly apparent in connection with the statistical work.

Roughly speaking, the collection and compilation of agricultural, meteorological and public health statistics more than occupy the whole of the time of one clerk. The gathering, indexing and filing of vital

statistics returns and the work in the accountant's branch, where during the year some 2,455 deposits were made and 396 vouchers were prepared, monopolise one more clerk. The brand work and the administration of the Herd District, Pound and Estray Animals Ordinances easily consume the time of two more men. The registration and attaching of the incoming correspondence and the entering and preparing of the outgoing correspondence form almost sufficient work to occupy one clerk continually. This still leaves some fifteen important services such as public health, stock inspection, game and fire protection, experimental work and others to be dealt with. In order to do so efficiently, I have been compelled during the year to require the staff to do considerable work after the regular office hours and on statutory holidays, and have also had to utilise the services of the Chief Inspector of Noxious Weeds at inside work in connection with the administration of The Noxious Weeds Ordinance.

I have, etc.,

CHAS. W. PETERSON,
Deputy Commissioner.

APPENDIX A.

TERRITORIAL HORSE BREEDERS' ASSOCIATION.

Officers for 1900-01.

President W. R. Stewart, Meadow Creek.
 First vice president..... A. H. Eckford, High River.
 Second vice president.... H. C. Lawson, Kennell.
 Secretary treasurer C. W. Peterson, Regina.

Breed Directors:

Clydes J. A. Turner, Millarville.
 Shires J. W. McLaughlin, High River.
 Hackneys A. M. Rawlinson, Calgary.
 Thoroughbreds..... O. A. Critchley, Calgary.
 Standardbreds..... J. R. Sutherland, Calgary.
 Coach breeds..... R. G. Robinson, Calgary.

General Directors:

D. H. Andrews . . . Crane Lake.
 A. J. McFarlane... Battleford.
 J. Leeds..... New Oxley.
 Tom Brown..... Lethbridge.
 John Herron..... Pincher Creek.

Ex-Officio Directors:

G. H. V. Bulyea... Commissioner of Agriculture, N. W. T.
 F. W. Hodson..... Dominion Live Stock Commissioner.

Auditors:

A. H. Eckford,.... High River
 D. H. Andrews..... Crane Lake.

Executive Committee:

W. R. Stewart..... Meadow Creek.
 A. H. Eckford High River.
 H. C. Lawson Kennell.
 C. W. Peterson..... Regina.
 J. A. Turner..... Millarville.
 O. A. Critchley..... Calgary.
 D. H. Andrews..... Crane Lake.

Report of the Secretary.

Mr. Chairman and Gentlemen,—Some years ago an association of horse breeders was formed in the Province of Manitoba under the name of “The Horse Breeders’ Association of Manitoba and the North-West Territories.” A very useful work has in the past been accomplished by this association, but feeling that the time had arrived when the Territories should have an independent organisation, a number of local horse breeders decided to call a meeting at Calgary of those interested in the subject, with a view to completing the necessary arrangements. The following circular letter was accordingly mailed from the Department of Agriculture at Regina to a number of Territorial horse breeders on the 31st August last; signed by me as secretary *pro tem*.

A number of horse raisers in the Territories have decided to organise a “Horse Breeders’ Association” and the initial business meeting is to be held at Calgary at 10 o’clock a.m. on the thirteenth of September, during exhibition week. The place of

meeting will be duly advertised in the Calgary papers and otherwise. You are specially invited to be present at this meeting and also to urge any of your friends and neighbours interested in horse breeding to attend and give the proposed association the benefit of their membership and influence.

Beyond doubt an association devoted to protecting and advancing the interests of horsemen is an urgent necessity in the Territories and the success which has attended the efforts of similar institutions elsewhere indicates a wide sphere of usefulness for the proposed association.

I may say that the annual membership fee need not exceed the sum of \$1.00, as such an association would probably receive financial assistance from the Dominion Government and be materially aided by the Territorial Government so as to enable it to carry on its work efficiently.

Trusting you will make it a point to be present at the meeting with a number of your friends.

The matter was enthusiastically taken up by the breeders and a thoroughly representative meeting was held in the Alexander Hall in September last, at which "The Territorial Horse Breeders' Association" was formed, a constitution and bylaws adopted, officers elected and the undersigned appointed secretary. In accordance with instructions received from the executive committee, soon after assuming office, I took steps to acquaint breeders in the various portions of the Territories with the fact that an association had been formed urging them to join. The response to this appeal was quite satisfactory; very encouraging letters were received from interested parties and the membership roll today numbers over one hundred.

Various proposals have been made from time to time, notably the suggestions contained in the last report of Commissioner Perry of the North-West Mounted Police, respecting the establishment of depots in various portions of the ranching country, where approved mares could be served free of charge under a guarantee by the owners to sell the male progeny to the Government. The scheme appears to be worthy of careful discussion.

The running at large of cayuse stallions is at present inflicting considerable hardship upon Territorial breeders located in the vicinity of Indian reserves. It is a well known fact that horsebreeding operations on these reserves are conducted in a very careless manner. Frequently herds of Indian ponies, with two or three scrub stallions amongst them, are found ranging upon the public domain, constituting a menace to profitable horse breeding operations on the part of white people who endeavour, by proper selection and mating, to attain success. There can be no doubt that a very large loss annually accrues to our horsebreeders by reason of having their well bred mares served by these inferior stallions. This is a matter upon which the association, as a body, might with propriety take action.

Although the Territories, particularly the western portions thereof, are plentifully supplied with native horses of a very low standard of excellence, for which it is practically an impossibility to find a market, the importation of scrub horses is still going on, thus materially aggravating the unfavourable market conditions for the above mentioned class of horses. The United States supplied us with some 6,000 horses during the past year at an average value per head of about \$20. Representations have in the past been made to the Dominion Government by agricultural societies in the Territories, the Western Stock Growers' Association and the Horse Breeders' Association of Manitoba with a view to having the valuation of horses brought in from the United States placed on a reasonable basis. At the present time the minimum valuation is placed at \$15. It would appear that no hardship would be inflicted upon dealers and

purchasers if this amount were raised to \$40 or \$50. It may safely be taken for granted that any horse worth less than \$50 is not required in this country either for breeding purposes or for actual use.

The market for heavy draught horses in Eastern Assiniboia and the Provinces of Manitoba and British Columbia is assuming larger proportions every year, and there can be no reasonable doubt that the demand for this class of animals will be largely in excess of the supply for many years to come. The shipments from the Province of Ontario into Manitoba during the year were 4,022 head and into the North-West Territories 1,291, making a total import from that province of 5,313. The shipment of heavy draught horses from the ranching portions of the Territories to the Province of Manitoba amounted to 2,010, and 137 head were shipped to the British Columbia market, being a total export of 2,147 head. The shipments to the Territories from the United States amounted to 5,739 head during the same period, making our total importation from all sources about 7,000 head, as against a total export of 2,147. This would appear to leave a balance of trade against us of 4,853 head. It is also worthy of note that some 1,836 horses, chiefly of the heavy draught class, were shipped from the ranching districts of the Territories to the farming districts in Northern Alberta, Saskatchewan and Eastern Assiniboia, making a total production of 4,983 head.

It has thus been shown that we do not supply the western market with work horses by some 5,000 head per annum at the present time, and it is also quite certain that owing to the enormous immigration which is now coming into the farming districts of the Province of Manitoba and the Territories and the mining development which promises to take place in British Columbia, the annual deficit will grow larger and larger. Our principal competitor at the present time is the United States. Competition from that source, however, promises to be reduced to a mere minimum within a very few years. A market has now been opened up for ranch bred horses in the eastern states of the Union, and the enormous number of serviceable horses drawn from that source in connection with the outbreak of hostilities in South Africa will undoubtedly tend to hasten the day when home consumption will outgrow the natural increase, and the United States, instead of being an exporting country, will become an importing country. Our remaining formidable competitor is the Province of Ontario. Taking into consideration the high value of farm property and stock feeds in that Province, and the very considerable cost of a two thousand mile haul, it is difficult to see how the Ontario breeder can, for any length of time, successfully compete against Territorial producers. With our extensive areas of free grazing lands and altogether nominal cost of raising horses, we should be able to compete with any horse raising country in the world.

I regret to state that the light draught and saddle horse market does not present an equally encouraging aspect. In spite of the fact that the Territories are now drawing on the colt crop of 1893 and 1894, the years of lowest production, the demand for light horses of all classes has not been very marked and values appear to have remained more or less stationary. A few of the best were purchased for use of the Canadian mounted contingents, which went to South Africa last year, but the great bulk of useful light horses, probably not quite coming up to the fixed military standards, are practically unsaleable. Statisticians have estimated that no less than 275,000 horses have been displaced in the United States

alone by the introduction of electric railways. Doubtless this development is partially responsible for the dull market conditions for this class of horses.

Steps were taken immediately upon the formation of the association to urge upon the proper authorities the benefits which would accrue to breeders of light horses if a remount depot for the Imperial army were established at some point in the Territories. The authorities of the city of Calgary enjoy the honour of having made the first official representations in this matter which, however, did not meet with approval at the hands of the Imperial Government. Realising that unless the association could guarantee the authorities that an adequate and continuous supply of suitable horses would be available, they would not be likely to incur any capital expenditure in the way of making permanent arrangements for the establishment of a remount depot, the executive committee after careful consideration directed me to forward the following communication to the Honourable Sidney Fisher, Dominion Minister of Agriculture, which I did under date of January 11th last :

I am directed by the Executive Committee of the Territorial Horse Breeders' Association to call your attention to the fact that, although one hundred thousand head of horses and mules have been purchased in the United States, and a considerable number in eastern Canada, for use in the South African campaign, for which satisfactory prices were paid, no attempt has apparently been made by the war office authorities to secure any portion of this enormous number of remounts in the Territories, in spite of the fact that both the western contingents, which left Canada for service in South Africa, were mounted entirely on western horses, and that it has not been satisfactorily established that any difficulty was experienced in obtaining a sufficient number of a satisfactory type, although the notice given the ranchers in both instances were entirely inadequate, owing to the hurried preparations.

It is well known to western breeders, and the fact is deeply deplored, that the impression evidently prevails in eastern Canada, that there are not enough horses raised in the Territories as yet for any practical purposes. This impression, however, is quite erroneous. It is true that during the years of low values breeding operations were largely discontinued, but it is also a fact that the absolute want of a remunerative and stable market for horses of certain standard types, it is not alone working a distinct hardship upon a vast number of small breeders, but it is also exerting a most baneful influence upon the development of the horse industry here, as it effectually discourages breeding operations. No person will, for any length of time, expend money and labour, upon high class breeding stock, without a reasonable assurance of ultimate satisfactory financial returns from his efforts.

Vast portions of the North-West Territories present such topographical, meteorological and soil conditions that general farming or cattle raising can never be successfully prosecuted therein. Such being the case, it necessarily follows that these enormous areas must eventually be devoted, if utilised at all, to the raising of horses, or in the more favourable localities, to sheep raising. It is, therefore, clear that the business of horse raising must perforce ultimately develop into one of the most important branches of agriculture in the west. But, even if these circumstances were not in themselves sufficient to bring horse breeding operations prominently to the front in the Territories, the local conditions are such that no horse producing country in the world could successfully compete against our cheap pastures, rich in lime, and our favourable climate, enabling horses to range out winter and summer, at little or no expense to the owner.

The present position of affairs is very unsatisfactory and I am directed by my committee to urge you, as emphatically as lies in my power, to come to the rescue of our breeders in some way. The market for heavy draught horses is all that could be desired at present, but the conditions here are not nearly so favourable to the production of this class of horses as to the raising of light horses, and it is particularly in connection with the latter that Government assistance is needed.

After devoting considerable thought to the matter, I am directed by my committee to suggest as a feasible means of putting this industry on a proper footing, that your Department should deal with it somewhat on the same basis as has been adopted in respect to the dairy industry in the Territories. An amount of money might be appropriated at the forthcoming session of Parliament, sufficient to enable you to purchase, as an experiment, a limited number of horses in the west, conforming to the cavalry, artillery and mounted infantry standards, at a fair minimum price. At least two months' notice should be given to breeders here of the dates and places where your agent would purchase and also full information respecting the types of horses required and to

what extent they should be handled. The association would undertake to look after the local organisation, advertising, etc., and would otherwise render your Department every assistance possible. Ample notice is *absolutely essential*, as horses are usually ranging out and it takes considerable time to get them in and properly handled. This will not, under ordinary circumstances, be done until there is a sale in sight. Three months' notice would be better than two. In the meanwhile negotiations could be opened up with the remount department of the British War Office with a view to having a purchasing officer sent out, as soon as your Department had gathered a sufficient number of horses, to inspect them and select all those coming up to the army standards.

There would doubtless be a certain number of culls, no matter how carefully the horses had been purchased; but those would, in centres like Toronto, Montreal or Ottawa, in most cases, be worth nearly as much as your Department paid for them, and if the prices offered Territorial breeders for their animals were fixed at their approximate value for army purposes, less the cost of transportation and other expenses (which would still leave a very satisfactory figure), it is unlikely that any considerable loss would be sustained by your Department in the whole transaction. Any trifling debit balance would, of course, be amply justified by the impetus which would be given horse breeding operations in the Territories.

Even granting that the necessary financial arrangements could be made to enable this association to successfully handle such a scheme itself, it could not hope to do so as economically and efficiently as it could be done by the Federal Government. You have in the person of the Live Stock Commissioner an official well fitted to do the organisation work required. At every considerable point in the Territories there is a mounted police divisional headquarters where assistance could be obtained in purchasing, holding and shipping these animals and where an experienced veterinarian, in the employ of your Department, would be available. In fact the cost of handling the scheme, in the hands of your Department, could be reduced to a mere minimum.

It is anticipated that if an arrangement such as outlined could be continued for five or six years, under a government guarantee, the production of military remounts in the Territories would easily double and if proper representations were then made to the Imperial Government, based upon actual knowledge of the number of suitable horses available annually and the record for endurance and constitution, which western horses would by that time undoubtedly have made for themselves in the service, it should prove a feasible proposition to induce the War Office authorities to establish regular remount depots at various points throughout the west such as are now maintained in the Argentine Republic by the British Government in connection with the Indian army.

In conclusion, I am to express the hope, in behalf of my committee, that its representations may meet with favourable consideration at your hands.

A copy of this letter was also directed to be sent to all western members of Parliament and boards of trade with an urgent request for hearty co-operation, and the result was that considerable agitation took place in favour of the proposal.

A committee composed of Captain D'Eyncourt and O. A. Critchley were appointed during the year to wait upon the War Office authorities in the interest of Territorial horse breeders. No report has as yet been received from these gentlemen, who are both at the present time in England.

Another committee, composed of Mr. D. H. Andrews and Mr. E. J. Swann, took the remount question up with His Excellency the Governor General of Canada and the Honourable Sidney Fisher at Ottawa, and an encouraging report of the efforts of this committee has been received.

At the request of the executive committee I communicated with Lieutenant Colonel Herchmer, Lieutenant Colonel Evans and Lieutenant Colonel Steele, asking each of these gentlemen to favour the association with a report upon their experience with western horses during the South African campaign. Very instructive and interesting statements have been received from Colonel Herchmer and Colonel Evans, which are herewith attached, but no reply has as yet come to hand from Colonel Steele.

The association, and Territorial horse breeders generally, are under deep obligation to Major Eckford, the father of Mr. A. H. Eckford, our vice president, who has interested himself greatly in the matter of obtaining recognition of western horses at the hands of the War Office.

Major Eckford secured the influence of a large number of members of the Imperial House of Commons as well as prominent officials of the War Office. It is of interest to know that the question of purchasing horses in the Canadian North-West was brought up in the British House of Commons and fully discussed. The Right Honourable Lord Stanley, during the debate, made the statement that the War Office was determined to give western Canada an opportunity to supply horses for the army. Under the directions of the executive committee letters have been addressed officially to those members of the House of Commons who have taken an interest in the question, thanking them for their kind offices and expressing the hope that a permanent trade in horses may before long be built up between western Canada and the mother country.

As a result of the representations made to the remount department of the War Office General Trueman, C.B., Inspector General of Remounts, sent a purchasing party to Canada recently, composed of Lieutenant Colonel Dent, the Honourable Major Gore, and Veterinary Surgeon Fraser. As bearing on Colonel Dent's mission I have thought it well to quote the following extract from a letter which I have received from the Dominion Chief Inspector of Stock at Montreal:

Colonel Dent will visit Alberta and other parts of the North-West Territories for the purpose of purchasing horses for the army in South Africa. Having to send 1,000 immediately, he will spend April in Ontario and Quebec; he will arrive in Alberta early in May. The dates and purchasing places will be arranged and published later.

The following are the particulars as to horses required: Cobs 14.1 hands to 15 hands, cavalry horses 15.1 to 15.2 hands high. No horses under six years this summer will be bought. The colours are restricted to bay, brown, black and chesnut; very dark iron gray if the animal is exceptionally good may be considered, but white or light grey need not be shown. Mares and geldings only; stallions or ridglings need not be shown. They must be thoroughly broken to ride, be bridlewise, and gentle to saddle; mount and dismount. They must be sound. Horses which are thin in flesh need not be shown.

As secretary of the Horse Breeders' Association, I presume you will give the above publicity, and I trust that though late in beginning we will be able to dispose of a large number of Alberta horses, and that Colonel Dent will be favourably impressed with the horse, country and people; as on his report will depend the establishment or not of a remount depot in Alberta and the continuance of purchasing there.

It is possible that Colonel Dent may be authorised to accept horses for immediate service in the field up to 12 or 14 years of age, upon a proper guarantee of age from the seller.

Steps were immediately taken by me to notify breeders of the impending arrival of the purchasing officer and it is to be hoped that, when Colonel Dent arrives, he will meet with hearty co-operation at the hands of our stockmen. Any future action on the part of the War Office authorities will be shaped almost entirely upon the report of this officer, and if our horsebreeders consult their own interests, they will offer every likely horse they possess, even at considerable temporary inconvenience. There can be no doubt that the opinion prevails that horses suitable for remount purposes cannot at present be obtained in western Canada in sufficient numbers to warrant the authorities in opening up regular trade connections. It now behooves our breeders to disabuse the minds of the remount officials on this score.

The first official recognition which western Canada secured was in connection with the trip of Colonel Ravenhill some years ago. His report was of such an adverse nature that the idea of securing military horses in Canada was dropped. Several years passed during which renewed representations were made but the effects of Colonel Ravenhill's unsuccessful mission was an insurmountable barrier to further progress. The requirements of the British army in connection with the South African war again brought Canada and Canadian horses to the front. Colonel Dent's

visit is, therefore, our second opportunity, and we, as an association, should leave no stone unturned to see that he is able to return to England with as fine a shipment of horses as has ever been obtained in any colony. As is pointed out in Dr. McEachran's letter, on his report will depend the establishment or not of a remount depot in this country and an assured market for horses coming up to the proper standard. It is to be hoped that before this meeting closes a thorough discussion will take place and a feasible scheme be outlined which will facilitate Colonel Dent's work and assure beyond all peradventure that his trip west will be a satisfactory one from the point of view of the War Office. It is unfortunate that more notice could not be given western breeders so that they could have brought in their horses and got them conditioned and handled. We will, however, have to make the best of it and explain to Colonel Dent the difficulties in the way. I would suggest that a committee should be appointed to look after this officer during his stay in the Territories and to confer with him upon the subject generally.

Even granting that a permanent trade is finally developed with Great Britain and that all the horses, coming up to the army standard, raised in the west, are purchased at a satisfactory figure, if the horse breeding industry develops to anything like the extent which would seem probable, there would still be a larger number of misfits to be disposed of. Under favourable conditions, with high class brood mares and the very best type of stallion procurable, the percentage of colts fit for cavalry troopers, or even mounted infantry remounts, will be correspondingly small. It will, however, be years before the breeding conditions in the Territories will at all approach perfection, as the quality of mares available at present are, generally speaking, of a low standard, and, as is well known, the grading up of a horse is slow work. It should not, therefore, cause surprise if one half of our annual colt crop from light mares were rejected for some years to come. This opens up a question of what is to be done with the misfits. Because a horse is considered unfit for military service, it does not at all follow that he would not be admirably adapted for a great many other purposes. One feature of our conditions which has so far kept buyers away from the west is the large expense of purchasing. If annual horse fairs were held at two or three places in the Territories, and the dates thoroughly advertised in British Columbia, the Province of Manitoba and Eastern Canada, buyers would undoubtedly attend these sales where they could pick up car load lots at a nominal expense.

Another task which it would be well for this association to impose upon itself, is the adjustment of prize lists in connection with the principal stock exhibitions in the Territories. Sister associations in the east all have representation on the boards of directors of exhibition companies and I would suggest that steps should be taken with a view to having similar representation on the board of the Calgary exhibition and also upon those of the Edmonton and Regina exhibitions. In this connection the association might with propriety exercise a beneficial influence upon the local stock shows of outlying agricultural societies. Diplomas might also be offered for stallions of pure breeding, where the exhibition authorities offer a fairly large first money prize.

In my report to the purebred cattle breeders yesterday, I took occasion to dwell upon the desirability of bringing the members of the association into contact with the very best authorities on live stock subjects. I had the pleasure of attending the live stock conventions at

Winnipeg in the interests of the Territorial associations last February, and I feel certain that anyone who went there and listened to the instructive addresses of Mr. A. J. Golbraith, the secretary of the American Clydesdale Stud Book, Dr. Rutherford, M.P., and many other notable breeders, could not fail to appreciate the very great advantage of this feature of live stock association work in other provinces. It would, I think, be well to have this matter discussed, and if it is the pleasure of the meeting that such arrangements should be made for our next annual session, doubtless no difficulties will be experienced in providing an instructive and interesting programme.

A statement of revenue and expenditure, duly audited, covering the past financial year is herewith attached.

Respectfully submitted,

CHAS. W. PETERSON,

Secretary.

Report of Lieut. Col. Herchmer, commanding Canadian Mounted Rifles in South Africa.

It must be borne in mind that beyond the few horses (some 150 a year) required for the North-West Mounted Police, the North-West has had no market for army remounts. In fact, the only western horses that ever joined the Imperial army were 16 purchased up here some twelve years ago by the late Colonel Ravenhill, an equally small number purchased later by Colonel Phillips, and 28 mounted police horses presented to the Imperial Government after the Jubilee (one of these horses I noticed at Kroonstadt in May, 1900, and about as useful an animal as I saw in South Africa), while Australia and New Zealand, and Cape Colony (until the horse sickness cleared them out) have had a good market for remounts in India. Consequently, it was a new experience for our ranchers when they were called on late in December, 1899, to supply horses to mount the Second Canadian Mounted Rifles, and later on the Strathcona Horse. The time to gather these horses in was very short, and most of the range horses had been turned out for the winter, and had scattered all over. Many were in low condition and all had very heavy winter coats, and it was a surprise to me that in the few days available we were able to gather the 371 horses required for the Second C.M.R.

A large number of these horses were not in condition to best stand a railroad trip of over 3,000 miles in very variable weather, entailing a descent of some three thousand feet to sea level, followed by six days in very draughty stables in Halifax, and a 29 days' sea voyage in the very worst and most unsuitable transport for horses that is said to have arrived in Cape Town up to the end of May, 1900. We left Halifax in a tremendous gale which lasted for three cold days, and then ran suddenly into tropical weather. During the storm, as many as 30 horses were down at a time, with the majority of my men too sea sick to attend to themselves, much less to the horses. The steamship "Pomeranian," particularly during this period, was extremely ill ventilated and so crowded that it was perfectly impossible not only to exercise the horses, but even to move them on some deck, until horses died and made vacant stalls; indeed on several decks no horses dying they were never moved. The hospital stalls

allowed on board were only useful for the horses immediately adjacent to them, as the difficulties of the alley ways precluded moving horses from beyond a stall or two. In spite of all this, thanks to the constitutions of the horses (although some 40 altogether were attacked with pneumonia), coupled with unremitting care on the part of our veterinary officer, Lieut. Riddel, and his energetic staff of assistants ably assisted by many of the men, we only lost nine horses.

The crowded state of the ship which for a period of 29 days precluded all exercise, prevented one feeding oats at all, as the sheaths and legs of the horses swelled up immediately we attempted it, and the musty condition of a considerable quantity of the hay necessitated it being thrown over board, caused one issue to be, in my opinion, too small during the last part of our voyage; indeed we entered the harbour of Cape Town without a pound left. In addition to this drawback on many occasions the water was extremely bad, and the quantity, when it was good, was not sufficient to satisfy the horses, and we were afraid to increase the allowance for fear of running short. The crowded state of the ship also prevented regular grooming of the horses, only a few men being able to work at a time, and only then where spare stalls were available to shift the horses, so that the men could get at them, and the horses were landed with their old range coats still very much in evidence, and sticking pretty fast too. From this packed and sweltering condition the horses moved into the exposed sandy lines of Green Point, where during nine days in camp the hay forage supplied was not sufficient for horses in such low condition, and on several occasions as we could not get oats and hay, we had to offer the horses wheat and chaff, a new departure for them. On reporting this to the officer commanding "the base," this issue was not repeated while in Cape Town.

Nine days after our arrival we were railed to Victoria Road, two days by train to the north, and the day after arrival there started on a seven weeks' march away from railroads into the Karoo Desert, a sandy district entirely without grass, dotted with bush called "karoo" on which sheep and donkeys appeared to thrive, but where a farm consisted of 50,000 acres and often more, only from five to ten acres being worked with irrigation on each. The best stocked farm I saw carried only 3,000 sheep and a very few horses, and in 100 miles of march I only saw one farm with any cattle, some fifteen in number, having died during the late epidemic. Consequently, the largest portion of the forage had to be hauled from the railroad generally by donkeys, an occasional load being purchased, at \$70 per ton, of oat hay. While later on, some wheat and chaff was also obtained from the farms. This apparent digression from the subject in hand is merely to point out the unfavourable conditions under which these western horses started on a campaign with horses from Great Britain, the Cape, Australia, New Zealand and the Argentine Republic all in good order, all of which, except the first named, had come direct from similar climates in the same latitudes they were called upon to campaign in. Our horses stood the work quite as well as the best of the Australian, New Zealand and Cape horses, better than the yeomanry horses, and the worst of our horses were in every way superior to the best of the Argentines, which greatly outnumbered any other class of remounts that came under one's notice. In fact these Argentines, although good lookers, could not compare in speed or usefulness with the ordinary Indian pony of the North-West. Later on, outside the African bred horses, none

of the horses met could stand the extreme heat of the days, followed by the intense cold at night like the Western Canadian horses. Another notable feature among our horses was, that no matter how hard they were ridden, they would always eat heartily when they got the chance. This good feature was only shared by the African bred horses as a general thing. The English, Australian and New Zealand horses were generally splendid looking animals with great speed, good bone, and very well bred, but when once down in condition they failed to stand the hardships as was clearly shown by the thousands of dead and used up horses left behind in the Free State, and particularly at Kroonstadt. Sore backs, caused by excessive poverty and heavy loads, was the sole cause of a number of our best horses being left behind although they were otherwise as sound and as full of life as ever.

Report of Lieut. Col. Evans, C. B., commanding Canadian Mounted Rifles in South Africa.

The Voyage Out.—The horses although crowded into a small space were landed in Cape Town with a loss of only nine. When it is considered that those horses were taken off the ranches in midwinter, shipped 3,000 miles by rail and 6,500 miles by sea, it reflects great credit upon the quality of the horses, the care taken of them by the men, and the very excellent management of Veterinary Lieutenant Riddell.

Cape Town.—The battalion remained in Cape Town nine days completing equipment and drilling. The condition of the horses after so long and difficult a journey under severe climatic conditions demanded at least a month's rest with liberal diet to fit them for hard work; however, marching orders were received, and the horses entered the most difficult work of the campaign under unfavourable conditions.

Carnarvon Field Force.—On March 8 and 9 the battalion proceeded by rail to Victoria West Road, and by route march to Carnarvon, where it became a portion of the Carnarvon field force organised under Colonel Sir Charles Parsons for the purpose of making a demonstration through the rebellious portion of Northern Cape Colony. This expedition involved the most difficult marching of the campaign, chiefly through the Karoo Desert country, and was a severe test of the spirit and physique of both men and horses. For a large portion of this period the daily forage ration consisted of one sheaf of oat straw (about $2\frac{1}{2}$ lbs.) and 8 lbs. whole wheat (musty) and this, together with the debilitated condition of the horses after the long sea voyage was the cause of heavy mortality. Continuous and heavy rains also added to the discomfort of men and horses. The N. C. O.'s and men stood this very severe physical test most successfully.

The battalion reached De'Aar on April 14, having march 700 miles during the previous month under conditions of food, forage, roads and weather, far more severe than any subsequently met with during the campaign.

Canadian Horses.—If the horses of the battalion had been given a fighting chance they would have made a splendid record, but the exigencies of the situation did not give them an opportunity to recuperate after the long voyage; and in poor condition they faced the expedition

through the Karoo Desert country, the severest work of the campaign. Notwithstanding these drawbacks, and the continual shortage of forage and water, during the rest of the campaign, very nearly 50 per cent. reached Pretoria. When the battalion was about to return home 33 of the original horses were on the strength; 122 had been turned over to rest and remount depots on the line of march, the majority of which were reissued to other corps; 177 had been abandoned on the line of march, exhausted; 7 had been exchanged for native horses; 24 had been killed in action or died on duty, and 13 died at sea (9 on S. S. "Pomeranian," 3 on S. S. "Milwaukee" and 1 on S. S. "Laurentian").

The above details account for 376 horses brought out with the battalion. Had the horses been given a month's rest at Cape Town, I am convinced that at least 75 per cent. would have been with the battalion at the end of its service.

APPENDIX B.

TERRITORIAL PUREBRED CATTLE BREEDERS' ASSOCIATION.

Officers for 1900-01.

President.....John A. Turner, Millarville.
 1st vice president.....P. Talbot, Lacombe.
 2nd vice president.....T. A. Skilliter, Grenfell
 Secretary treasurer.....C. W. Peterson, Government Buildings, Regina.

Breed directors :

Shorthorns.....H. Raikes, Pine Lake.
 Herefords.....D. H. Andrews, Crane Lake.
 Polled Angus.....Jas. Rodgers, Panima.
 Galloways.....W. E. Cochrane, Mosquito Creek.
 Dairy breeds.....H. A. Malcolm, Innisfail.

General directors :

Jas. Peaker.....Yorkton.
 E. D. Adams.....Millarville.
 A. B. McDonald.....New Oxley.
 A. R. Springett.....New Oxley,
 J. R. Craig.....Meadow Creek.

Ex officio directors :

G. H. V. Bulyea.....Commissioner of Agriculture, N.W.T.
 F. W. Hodson,Dominion Live Stock Commissioner.

Auditors :

P. Talbot.....Lacombe.
 D. H. Andrews.....Crane Lake.

Executive committee :

John A. Turner.....Millarville.
 D. H. Andrews.....Crane Lake.
 P. Talbot.....Lacombe.
 A. B. McDonald.....New Oxley.
 C. W. Peterson.....Regina.
 A. R. Springett.....New Oxley.
 T. A. Skilliter.....Grenfell.

Report of the Secretary.

Mr. Chairman and gentlemen : As you are probably aware, a department of the public service of the Territories was created in 1898, having for its object the advancement of the agricultural and pastoral industries. In the course of time it became apparent that a necessity existed for live stock associations in the Territories. The Department was anxious to assist breeders of purebred cattle, but as there was no representative body which could be consulted as to the requirements and wishes of such breeders it was frequently found difficult to accomplish this object. The following circular letter was, therefore, mailed from the Department of Agriculture at Regina, on August 31 last, to a number of Territorial breeders of purebred cattle, and signed by me as secretary *pro tem* :

A number of purebred cattle breeders in the Territories have decided to organise a Purebred Cattle Breeders' Association, and the initial business meeting is to be held at Calgary at 10 o'clock a.m. on the 14th of September during exhibition week. The place of meeting will be duly advertised in the Calgary papers and otherwise. You are

specially invited to be present at this meeting and also to urge any of your friends and neighbours interested in purebred cattle breeding to attend and give the proposed association the benefit of their membership and influence.

Beyond doubt an association devoted to protecting and advancing the interest of purebred cattle breeders is an urgent necessity in the Territories, and the success which has attended the efforts of similar institutions elsewhere indicates a wide sphere of usefulness for the proposed association.

I may say that the annual membership fee need not exceed the sum of \$1.00, as such an association would probably receive financial assistance from the Dominion Government and be materially aided by the Territorial Government, to enable it to carry on its work efficiently.

Trusting that you will make it a point to be present at the meeting with a number of your friends.

Breeders responded to the invitation of the Department in a hearty manner and a fairly representative meeting assembled on September 14 last, at which "The Territorial Purebred Cattle Breeders' Association" was formed, a constitution and bylaws adopted, officers elected and the undersigned appointed secretary.

Soon after assuming office I made it my business to collate as complete a list as possible of breeders of purebred cattle in the various portions of the Territories, and acquainted them with the fact that the association had been formed and invited them to join. It is satisfactory to note that most of the breeders recognised at once the value of organisation, with the result that the membership of the association has today reached 43.

There are a great many important questions awaiting attention at the hands of the association; the position of the local purebred cattle market being, to my mind, one of the most urgent. The distances in the Territories are great and railway charges high, and the result is that the market which the breeder on the small scale is at present practically confined to is his small circle of neighbours. Every person who has had any experience in the breeding and marketing of purebred animals will immediately appreciate the difficulties of such a position. The old saying that "familiarity breeds contempt," is peculiarly true in regard to the persistency with which many of our smaller stockmen stick to the "mail order" system, and seem ready to sacrifice individuality to pedigree and show record of more or less remote ancestors, rather than purchasing animals raised by local breeders of equal breeding and higher merits. It is a notorious fact that the stockmen invariably underestimate the value of any purebred stock raised in their midst, by men with whom they are intimately acquainted, while they are always ready to pay more for an article or animal brought in from a distance. This is a serious drawback to our local breeders. The position may, therefore, be summed up as follows: While the Territories furnish an excellent market for purebred cattle of fair quality and at reasonable prices, our home breeders have not in the past been able to derive the greatest possible advantage from this favourable condition, chiefly owing to the prohibitory cost of less-than-carload shipments, and the lack of support from local stockmen.

The Territorial Government, acting in co-operation with the Canadian Pacific Railway Company, has in the past given substantial aid towards the importation of purebred bulls into the country by way of carrying such bulls for *bona fide* settlers, at a uniform rate of five dollars per head from any point in the Provinces of Manitoba and Ontario to any point in the North-West Territories under certain restrictions. This again, has to some extent placed local breeders at a disadvantage. In view of the fact, however, that not 10 per cent. of the number of bulls required are produced in this country, it cannot be successfully argued that this scheme is working

any injury upon our local breeders of purebred cattle. The Government has repeatedly expressed its willingness and anxiety to assist the purebred cattle industry of the Territories and it now behooves the association to point out a reasonable and feasible way.

All experienced ranchers agree as to the superiority of homebred and acclimated bulls and, other things being equal, they would undoubtedly be willing to pay as large, if not a larger price for such animals, than they now pay in the eastern Provinces for bulls in many cases inferior in point of usefulness to homebred stock.

Clearly what is required to place the purebred cattle industry in this country on a solid and satisfactory footing, and to encourage the exchange of bulls, is to bring producer and purchaser together by providing the most convenient marketing facilities.

A memorandum was issued by the Dominion Live Stock Commissioner, Mr. F. W. Hodson, sometime ago, in which he pointed out the advantages of public sales of purebred stock. All those who have had any experience in old country live stock matters are well aware of the fact that this method is adopted there, almost entirely, in disposing of surplus stock of all classes. In Scotland public sales of purebred stock have been in vogue for the last thirty years, and most farmers now attend these sales and purchase what purebred stock they require as a matter of course rather than trust to the uncertain and unbusinesslike method of mail purchase, or the expensive method of personally visiting a large number of breeding establishments in quest of probably only one or two animals. The Dominion Government expressed its willingness to give financial assistance to any association that wished to give the principle a trial and, after consultation with the executive committee, I entered into negotiations with the Dominion and Territorial Governments with a view to completing the necessary arrangements.

I am pleased to be able to state that I met with the greatest possible encouragement at the hands of both. The Dominion Government, through Mr. F. W. Hodson, readily agreed to defray all expenses of the sale, while Mr. Bulyea, Territorial Commissioner of Agricultural, promised that the Department would pay all cost of transportation of stock going to the sale from any portion of the North-West Territories. The result was that the executive committee considered it advisable to proceed with the organisation work at once.

Arrangements were accordingly made for the use of the frontier stables at Calgary and, after consulting with the Dominion Live Stock Commissioner as to the requirements of his Department in order to qualify for Government assistance, the attached rules governing the sales were adopted:

Rules Governing Sales.

1. The association undertakes to issue a catalogue of entries received prior to the 20th of March, giving full information as to pedigrees of stock entered and to place it in the hands of probable buyers; to do such other advertising as will bring the sale to the notice of interested parties and to provide suitable accommodation for stock entered.
2. The management will be under the control of the executive committee of the association.
3. Entries for the sale must be received by the secretary on or before the 20th of March. The catalogue of entries will be prepared and distributed at the sale.
4. An entry fee of one dollar for each animal will be charged, to accompany application.
5. An entry ticket will be issued for each animal entered, which must be pre-

sented to the sale superintendent before an animal will be admitted to the building.

6. Animals not entered will not be allowed in the building.

7. Stock must be in the stalls, or in the pens, not later than 3 p.m. on the 11th of April.

8. Cattle must be halter broken and each animal supplied with a good halter. If this is not done the superintendent will buy a suitable halter and collect for the same from the person sending the animal. Bulls must be ringed.

9. Each animal offered must be a fair representative of its breed, in good condition, in sound health, not defective and shall be registered in a record recognised as reliable by the Dominion Department of Agriculture.

10. Each animal offered may be inspected by some person authorised by the association, before the entry is finally accepted.

11. It is very important that intending buyers should feel confident that all animals advertised will be put up for sale, no person will be allowed to withdraw an animal which has been entered and accepted, except on account of sickness or death of the animal offered or in case of accident. In case of sickness or death a certificate from a veterinary surgeon must be supplied at the time of sale.

12. Prospective buyers will be given an opportunity of handling and examining the stock offered for sale, which will be available for inspection from 3 o'clock p.m. of the date prior to the sale, until disposed of.

13. Every care will be exercised by the management to prevent injury to or loss of property, but they will not be responsible for any loss or damage that may occur.

14. Through an arrangement with the Territorial Department of Agriculture, the association is able to take delivery of all animals intended for sale, providing a sufficient number of entries are received, at the seller's nearest railway station and will carry them free of all charges to the point of sale.

15. All stock may be consigned to the secretary, and will be taken care of, upon arrival at the point of sale, at the expense of the association. The expense of feeding until the close of the sale, will also be borne by the association. After this time, feeding will be at the expense of the buyer.

16. All animals should be registered when entered. A certificate of transfer on proper form for registration, with the name of the transferee left blank, must be deposited with the secretary.

17. Each animal entered shall be sold to the highest bidder. There shall be no puffing or by-bidding by the owner of the animal, or anyone authorised by him. Statutory declaration may be requested from any buyer or seller, that any purchase or sale is bona fide, and that there has been no by-bidding or puffing in connection therewith.

The privilege and power of withdrawing any animal from the sale at any time, shall rest solely with the executive committee and will be exercised at its discretion.

18. The highest bidder will be the buyer, and if any dispute arises between two or more bidders, the same shall be settled by the animal being again put up and resold. The decision of the auctioneer shall be final in all cases.

19. All purchases must be settled for within one half hour of the sale of the animal. If purchasers fail to settle for their purchase as stated, the committee reserve full power to resell the same to the best advantage, either publicly or privately, without further intimation, and any loss arising from any such resale, together with keep and all other expenses, will be collected from the defaulters at this sale.

20. Immediately after each purchase is declared, *the risk of the animal shall be exclusively with the purchaser*, and it is declared that, until a settlement shall be made in terms of these conditions, the delivery of the animal shall be suspended.

21. Before an animal can be removed from the building the buyer must present to the superintendent an order signed by the secretary and give a receipt for the animal. This order, together with the receipt, must be left in the hands of the superintendent and will be evidence of the delivery of the stock.

22. The secretary will have power to give receipt in full for all payments for stock sold and will remit the amount realised for each animal to the owner thereof within ten days after the date of the sale.

23. The animals will be delivered to the various buyers at the building in which the sale is held, and the buyers will take charge of them at the close of the sale.

24. Arrangements can be made by purchasers to have the animals fed hay and cared for in the building after the sale at the rate of 25 cents per day, owner finding his own grain. The superintendent will also arrange for the shipment of any animal purchased, at the expense of the owner.

25. Every person who contributes an animal to the sale, and everyone who bids at the sale, by so doing agrees to the terms and conditions of the sale.

Prizes:—The following prizes are offered by the Dominion Department of Agriculture to the seller of the two cattle realising the highest price at the sale: Highest, \$25.00; second highest, \$15.00; third highest, \$10.00.

After perfecting the local arrangements a memorandum was issued to the members setting forth the basis upon which the sale would be held, and inviting all persons having purebred cattle for sale to notify me.

The result was more than gratifying, over fifty animals being entered in the course of a very short time. It is only fair to state that, owing to the short notice which was given breeders, it is probable that the animals offered for sale this year may not be in as good sale condition as it is hoped to have them in the future.

Very considerable objection has been raised by some breeders in the provinces of Manitoba and Ontario against the annual stock sales institution; nevertheless, I am strongly inclined to believe that these sales will prove a benefit to producer and purchaser alike in the Territories. The statement has been made that, owing to the inferior class of stock which may find its way to such sales, and the consequent low prices which will be realised, the tendency will gradually be to reduce the values of high quality purebred stock. I cannot see that there is either sense or reason in this contention. My own opinion is that these sales should be open to the public, the only stipulation being that all stock offered should be purebred, in fair sale condition, raised in the Territories or have been owned in the Territories for at least two years. If the entries are limited to the highest class stock only, the sales will not be popular and will not, according to my idea, properly fulfil their mission. Anyone sending an inferior animal to a public sale will, presumably, if the sale is well advertised, realise its proper value in the open market, which is all he should expect. A report has recently been received by me stating the result of a similar sale in the province of British Columbia. The average price realised for shorthorn bulls was \$180 per head, females \$125, Ayrshire bulls \$135 and Ayrshire cows \$132.50. This certainly does not exhibit a tendency on the part of public sales to reduced prices of high class stock. It might also be well to note that the sum of \$500, quite a phenomenal price from a Canadian standpoint, was realised for a bull bred by the Hon. John Dryden at the sale held at Guelph. The general average at Guelph was rather low, but if culls were offered at the sale and only realised cull value, the fact surely cannot be used as an argument against the utility of public sales.

A very valuable work has been done by sister associations in the Provinces of Manitoba and Ontario in the way of adjusting the prize lists in connection with the more important stock exhibitions in these provinces and obtaining better accommodation on the show grounds for cattle exhibits. The eastern live stock associations all have representation on the boards of directors of these exhibition corporations or societies. It would be well if steps were taken with a view to having similar representation on the board of the Calgary exhibition, and probably also on the management of the forthcoming exhibitions at Edmonton and Regina.

A good work could also be done if the association would contrive to exercise some little influence upon agricultural societies holding local stock shows. A perusal of the prize lists published by many of these societies would effectually remove all doubt as to the advisability of such action. A step in the right direction has been taken by the Territorial Government in the appointment of expert judges at local shows and in selecting outside and disinterested persons for this task.

It is the practice of the Pure Bred Cattle Breeders' Association in the Province of Manitoba to offer diplomas for competition at agricultural shows. I do not believe in the principle of offering such diplomas indiscriminately. The result is that inferior animals very often earn the diplomas, which in turn bring the same into public contempt. I might,

however, submit for your consideration the advisability of offering a suitable diploma for the best purebred bull of each recognised breed, over two years of age, where the exhibition authorities offer a first money prize of not less than fifteen dollars. This offer could be brought to the attention of societies and, by thus limiting the number of diplomas to be issued, the result would soon be a keen competition for this mark of excellence.

Another question which eastern associations have taken a lively interest in is that of freight rates on purebred cattle. Owing to the exertions of these associations very substantial reductions have in the past been made on purebred cattle shipments. I am not prepared to say that Territorial breeders have not received as fair treatment as could be expected under the circumstances, but it is possible that local grievances exist, and I would merely draw the attention of the members of the association to the fact that, if any such grievances are reported to me as secretary, I will make it my particular business to bring them to the attention of the proper authorities with a view, if possible, to obtain redress.

Our meeting this year will be of a strictly business nature, and in this connection I may say that the practice of live stock associations in the Provinces of Manitoba and Ontario has been to make their annual gatherings not only an occasion for the transaction of necessary routine and general business, but also to bring the members into contact with the best authorities on live stock subjects extant. I might also state that both the Territorial and Dominion Departments of Agriculture have expressed their desire to assist in bringing the best procurable talent in Eastern Canada and the United States to address the annual meetings of the live stock associations.

I attended the meeting of the Pure Bred Cattle Breeders' Association at Winnipeg in February last in the interest of this association and obtained a great many valuable suggestions bearing on our work.

A statement of revenue and expenditure, duly audited, covering the past year is herewith attached.

Respectfully submitted,

CHAS. W. PETERSON,

Secretary.

INDEX.

	PAGE
Alfalfa, experiments with.....	26
Agricultural exhibitions.....	46
" " judges for.....	46
" " prize lists, adjustment of.....	110
" experiments.....	22
" " with alfalfa.....	26
" " " barley.....	25
" " " hay.....	26
" " in eradication of sweet grass.....	27
" " grasses.....	26, 28
" " with oats.....	26
" " " potatoes.....	26
" " " rape.....	26
" institute work.....	48
Agricultural statistics.....	16
Animals, sales of under Herd Ordinance.....	78
" estrays.....	76
" " recovery of by owners.....	77
" " revenue from sales of.....	77
" " sales of.....	79
" " statistics, estray, entire estray and impounded.....	77
" " entire, sales of.....	78
" impounded, sales of.....	78
Auction sales, of pure bred cattle.....	117
" " of swine, Calgary and Edmonton Railway.....	68
" " extension of.....	72
Barley, crop returns 1900.....	22
" experiments with.....	25
" for malting.....	23
Brand book.....	75
" Ordinance, transactions under.....	73
" records.....	73
Brands.....	73
" cattle.....	74
" " on neck or jaw.....	74
" horse.....	75
" transfers of.....	75
Branding with chemicals.....	75
" faulty methods of.....	74
Bertillon classification of causes of death.....	83
Births, 1900.....	85
" ratio of to deaths.....	85
" excess of male.....	85
" registrars of.....	84
Bulls, pure bred, importation of.....	59
" " " from Manitoba.....	60
" " " from Ontario.....	61
Calgary experiment station, report of manager.....	24
Classification of deaths.....	83
Cattle.....	53
" , market prices of.....	53
" Breeders' Association, Territorial Pure Bred, report of secretary.....	115
" " " Officers of.....	115
" " " organisation of.....	115
" " " auction sales held by.....	117
" , bulls, pure bred, importation of.....	59
" , exports of.....	53

	PAGE
Cattle, improvement of.....	59
“ , pure bred, freight rates on	120
“ , reports of stockmen	55
“ , stocker, value of.....	54
“ , stocker, exports of to the United States	54
“ , “ , movement of from farming to ranching districts.....	53
“ , brands	74
“ , faulty methods of branding	74
Causes of death, statistics	90
Charity work of hospitals	97
Chemical branding.....	75
Clerical work of department.....	101
Colonisation.....	99
“ , immigration statistics.....	99
“ , homestead entries	100
“ , land sales	100
Contagious and infectious diseases.....	86
“ “ “ , in municipalities.....	89
Crop districts.....	17
“ “ , conditions in 1900	17
“ statistics	22
Correspondence, departmental	101
Dairy industry.....	51
“ “ statistics	52
Deaths, 1900.....	85
“ , classification of causes of.....	83
“ , ratio of births to.....	85
“ , registrars of.....	84
Dent, Lieutenant Colonel, purchase of army remounts by.....	109
Department, correspondence of.....	101
“ library.....	101
“ staff of.....	101
“ work of.....	102
Eradication of sweet grass, experiments in.....	27
Evans, Lieutenant Colonel and report of on North-West horses in South Africa.....	113
Estray animals.....	76
“ “ sales of.....	79
“ “ recovery of by owners.....	77
“ “ revenue from sales of.....	77
“ “ statistical statement 1885 to 1900	77
Elevators, inspection of.....	40
Experiments, agricultural.....	22
“ with alfalfa.....	26
“ “ barley	25
“ “ grasses	26
“ in eradication of sweet grass	27
“ with oats.....	26
“ “ potatoes.....	26
“ “ rape	26
Experiment station, Calgary, report of manager.....	24
Expenditure of agricultural societies.....	50
“ hospitals.....	98
Entire estray animals.....	78
Exhibitions, agricultural.....	46
“ “ judges at.....	46
Exhibition, Paris, Territorial grain at.....	48
Exports of cattle and horses	62
“ stockers to United States.....	54
Farmers' Institute meetings.....	48
Feed oats, weed seeds in.....	44
Fenced pastures for sheep.....	64
Freight rates on pure bred cattle.....	120
Fire guardians.....	80
Fires, prairie and forest.....	80
Game protection.....	80
Grain, Territorial at Paris exhibition.....	48
“ experiments with.....	25
“ “ “ barley	25

	PAGE
Grain, experiments with oats.....	26
“ “ “ wheat	25
“ malting barley	23
Grasses, experiments with.....	26, 28
Growing season, rainfall during.....	8
“ “ temperatures	7
Hay, experiments with.....	26
Health, public.....	86
“ “ , contagious and infectious diseases.....	86
“ “ “ , in municipalities.....	89
Herd District, additions to the withdrawals from.....	76
“ Ordinance, sales under.....	78
Herchmer, Lieutenant Colonel, report on North-West horses in South Africa.....	111
Hide inspection.....	63
Hides, injury to in branding.....	74
Homestead entries.....	100
Horse brands.....	75
“ Breeders' Association, Territorial, officers of	104
“ “ “ , organisation of.....	104
Horses	63
“ , shipments of.....	62
“ , registration of stallions.....	63
“ , government stallion depots.....	105
“ , imports and exports of.....	106
“ , remount, for Imperial Army, depots for.....	107
“ “ , purchase of by Lieutenant Colonel Dent.....	109
“ in South Africa, report of Lieutenant Colonel Herchmer on.....	111
“ in South Africa, report of Lieutenant Colonel Evans on.....	113
“ , importations of, from the United States, values of.....	105
“ “ “ , minimum valuations of.....	105
“ , work.....	106
“ , light draught and saddle.....	106
Horse breeders, loss to caused by scrub stallions.....	105
Hospitals, work of.....	96
“ , statistics of.....	98
“ , revenue and expenditure of.....	98
“ , charity work of	96, 98
Immigration statistics.....	99
Improvement of cattle.....	59
“ “ swine.....	68
Impounded animals, statistics.....	77
“ “ sales of.....	78
Importation of horses from United States.....	105
Importation of pure bred bulls.....	59
Incurables.....	99
Injury to hides in branding.....	74
Inspection of elevators.....	40
“ “ hides.....	63
“ “ stock.....	61
Inspector of Noxious Weeds, report of Chief	34
Institute work.....	48
Introduction of weeds, recent.....	42
Irrigation ditches, weeds spread by means of.....	43
Irrigated and non irrigated soils, report on by Professor T. Shutt.....	31
Judges at agricultural exhibitions	46
Lands, sales of in Territories	100
Lectures on noxious weeds.....	33
Library, departmental.....	101
Malting barley.....	23
Manager, Calgary experiment station, report of.....	24
Manitoba, importation of pure bred bulls from	60
Marriages, 1900.....	85
“ native countries of contracting parties	86
“ by denominations.....	86
“ registrars of.....	84
Mean temperatures during growing season	7
“ marriage age.....	85

	PAGE
Meteorological.....	5
" general remarks	8
" local notes.....	8
" record, Calgary experiment station.....	27
" precipitation observers.....	6
" during growing season.....	8
" annual.....	13
" monthly.....	13
" temperature observers.....	7
" 1900	14
" mean during growing season.....	7
Mortuary statistics, 1900.....	90
Municipalities, contagious and infectious disease in.....	89
" noxious weeds in.....	43
Mutton, export trade in.....	64
Noxious weeds.....	32
" " , bulletin on, publication of.....	34
" " , seeds of in feed oats.....	44
" " , in municipalities.....	43
" " , inspection of elevators for.....	40
" " , lectures on.....	33
" " , poisonous.....	34
" " , recent introductions of.....	42
" " , report of chief inspector of.....	34
" " , spread by means of irrigation ditches.....	43
Oats, weed seeds in feed.....	44
Ontario, importation of pure bred bulls from.....	61
Observers, meteorological.....	6
Outbreak of smallpox.....	87
Pastures, fenced for sheep.....	64
Prairie and forest fires.....	80
Periodicals taken by department.....	101
Precipitation observers.....	6
" , annual.....	13
" , monthly.....	13
" , during growing season.....	8
Prize lists of agricultural exhibitions, adjustment of.....	110
Poisonous weeds.....	34
Poisoning of sheep.....	67
Potatoes, experiments with.....	26
Professor Shutt, report on Central Alberta soils.....	29
Protection of game.....	80
Pork, prices of at Winnipeg and Edmonton.....	68
Public health.....	86
" " , contagious and infectious diseases.....	86
" " , " " , in municipalities.....	89
" " , smallpox outbreak.....	87
Purchase of army remounts by Lieutenant Colonel Dent.....	109
Pure Bred Cattle Breeders' Association, report of secretary.....	115
Rape, experiments with.....	26
Rainfall during growing season.....	8
" , total monthly.....	13
Recent introductions of weeds.....	42
Records of brands.....	73
Registrar of births, marriages and deaths.....	84
Registration divisions.....	84
Registration of stallions.....	63
Regulations, wolf bounty.....	81
Religious denominations, marriages by.....	86
Remount depots for Imperial army.....	107
Remounts, purchase of by Lieutenant Colonel Dent.....	109
Report of manager Calgary experiment station.....	24
" Professor Shutt on Central Alberta soils.....	29
" chief inspector of noxious weeds.....	34
" chief clerk on auction sales of swine, on line of Calgary & Edmonton Railway.....	68
" secretary, Territorial Horse Breeders' Association.....	104
" " " Pure Bred Cattle Breeders' Association.....	115

	PAGE
Report of Lieutenant Colonel Herchmer on North-West horses in South Africa...	111
“ Lieutenant Colonel Evans on North-West horses in South Africa.....	113
Returns of agricultural societies.....	45
Revenue from estray animals.....	77, 79
Revenue of agricultural societies.....	50
“ Territorial hospitals.....	96, 98
Rules governing auction sales of live stock.....	117
Sales of estray animals.....	79
“ under Herd Ordinance.....	78
“ of swine, by auction, Calgary & Edmonton Railway.....	68
“ auction, of live stock.....	117
“ of lands.....	100
Smallpox, outbreak of.....	87
Staff, departmental.....	101
Stallions, inferior, running at large of.....	105
“ registration of.....	63
Stallion depots, government.....	105
Statistics, value of.....	16
Seneca root.....	31
Sheep.....	64
“ fenced pastures for.....	64
“ imports of Great Britain.....	64
“ mutton exports.....	65
“ poisoning of.....	67
“ wool.....	65
Soil analyses.....	28
Soils, irrigated and non irrigated.....	31
Stockers, values of.....	54
“ exports of to United States.....	54
“ shipments of to ranching districts.....	62
Stockmen, reports of.....	55
Stock, inspection of.....	61
“ shipments of, 1900.....	62
South Africa, reports on North-West horses in.....	111, 113
Shutt, Professor, reports on Central Alberta soils.....	29
Transfers of brands.....	75
Temperature observers.....	7
Temperatures, mean during growing season.....	7
“ , 1900.....	14
Territorial grain at Paris exhibition.....	48
“ Horse Breeders' Association, report of secretary.....	104
“ Cattle Breeders' Association, report of secretary.....	115
Tuberculosis, deaths from.....	88
Vital statistics, 1900.....	83
Valuations of imported horses.....	105
Volume of business, departmental.....	101
Wheat, experiments with.....	25
Weather conditions, 1900.....	8
Weeds, noxious.....	32
“ , recent introductions of.....	42
Wolves, destruction of.....	81
“ , number of destroyed.....	81
Wolf bounty regulations.....	81
Wool.....	65

APPENDIX A.

Territorial Horse Breeders' Association.....	104
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APPENDIX B.

Territorial Pure Bred Cattle Breeders' Association, report of secretary.....	115
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